

Figure 1. Triglyceride content of a *Drosophila guf* (GadFly Accession Number CG16747) mutant

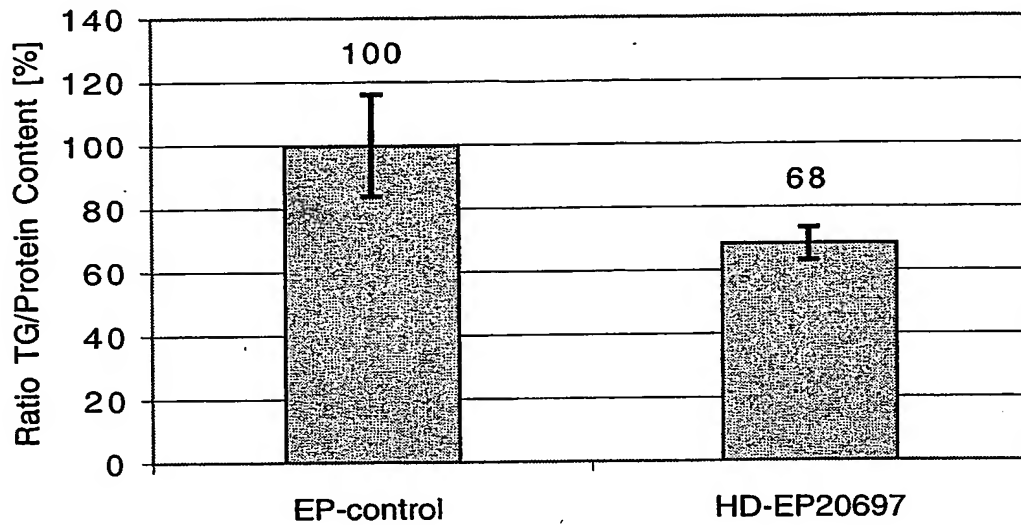


Figure 2. Molecular organization of the *guf* gene (GadFly Accession Number CG16747)

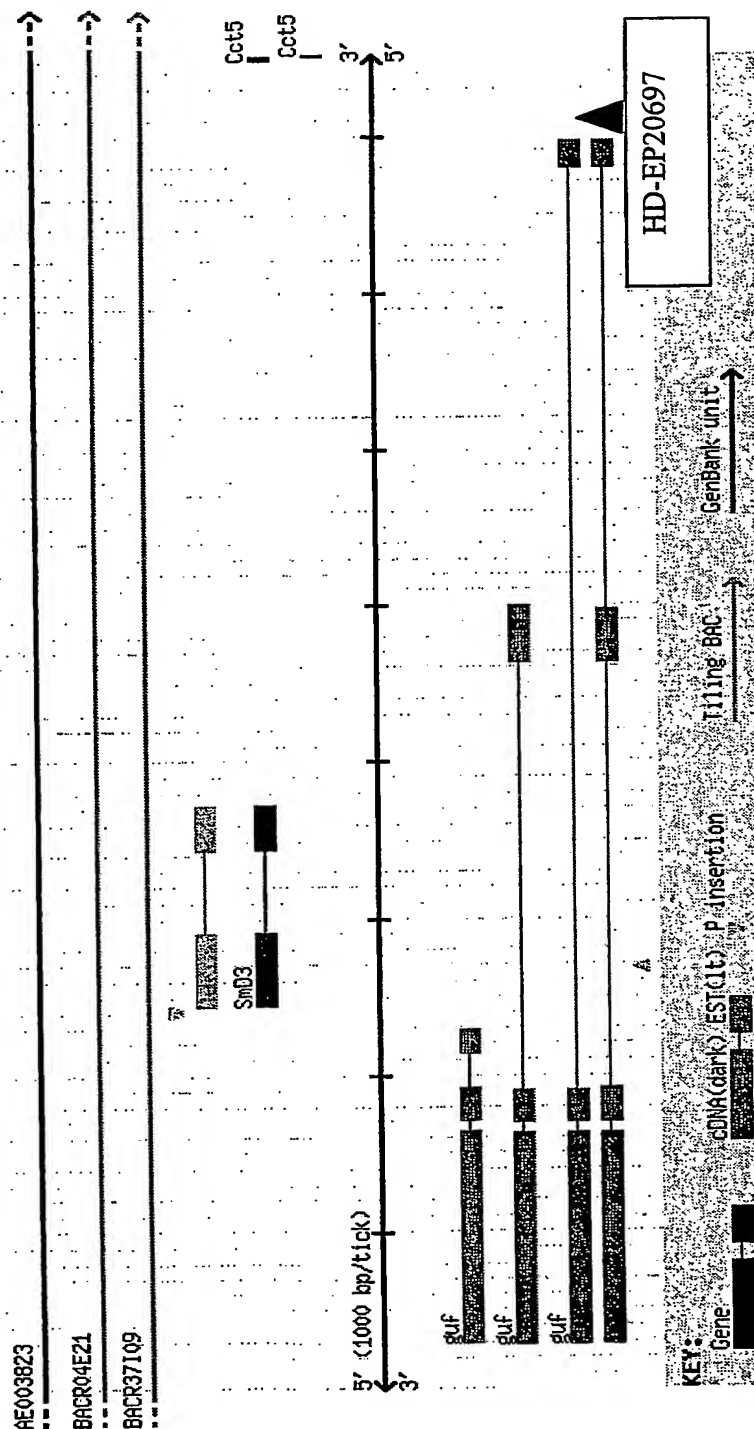


Figure 3. Expression of the *guf* (GadFly Accession Number CG16747) Homologs in Mammalian Tissues

Figure 3A. Real-time PCR analysis of ornithine decarboxylase antizyme 1 (*Oaz1*) expression in wild type mouse tissues

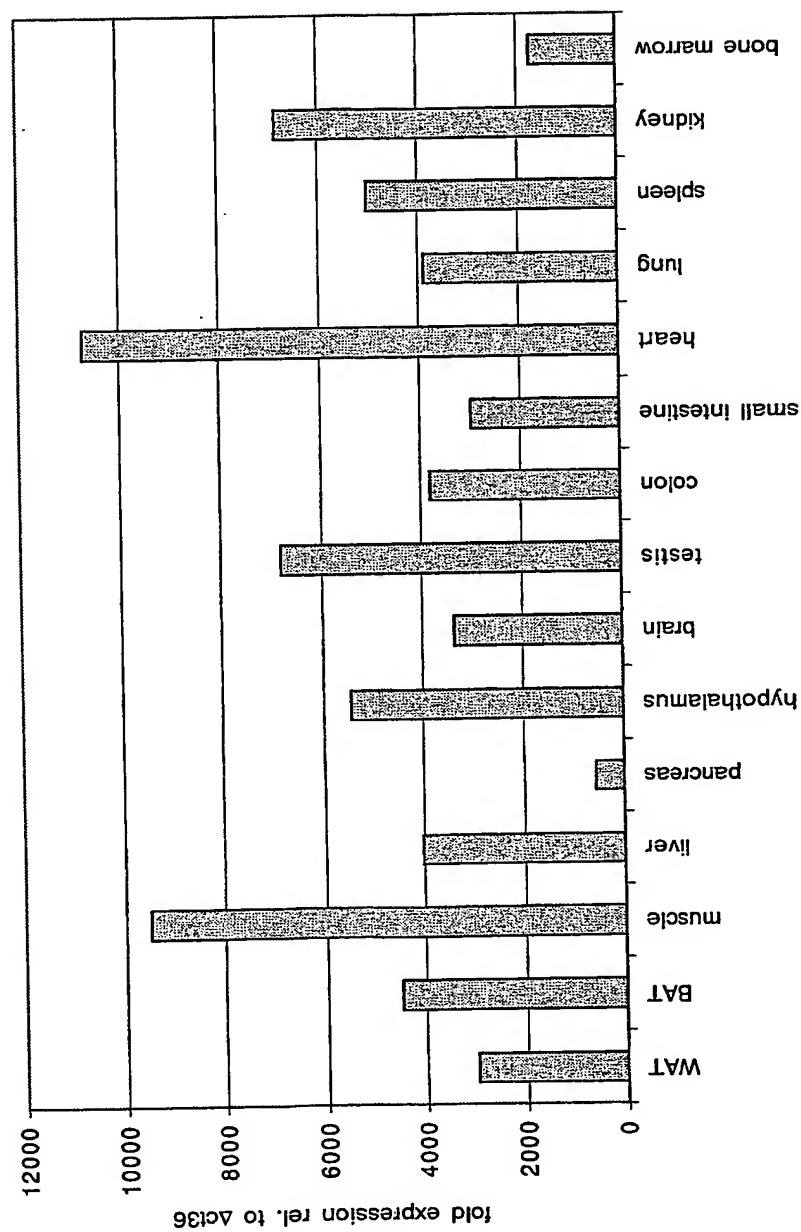


Figure 3B. Real-time PCR analysis of Oaz1 expression in different mouse models

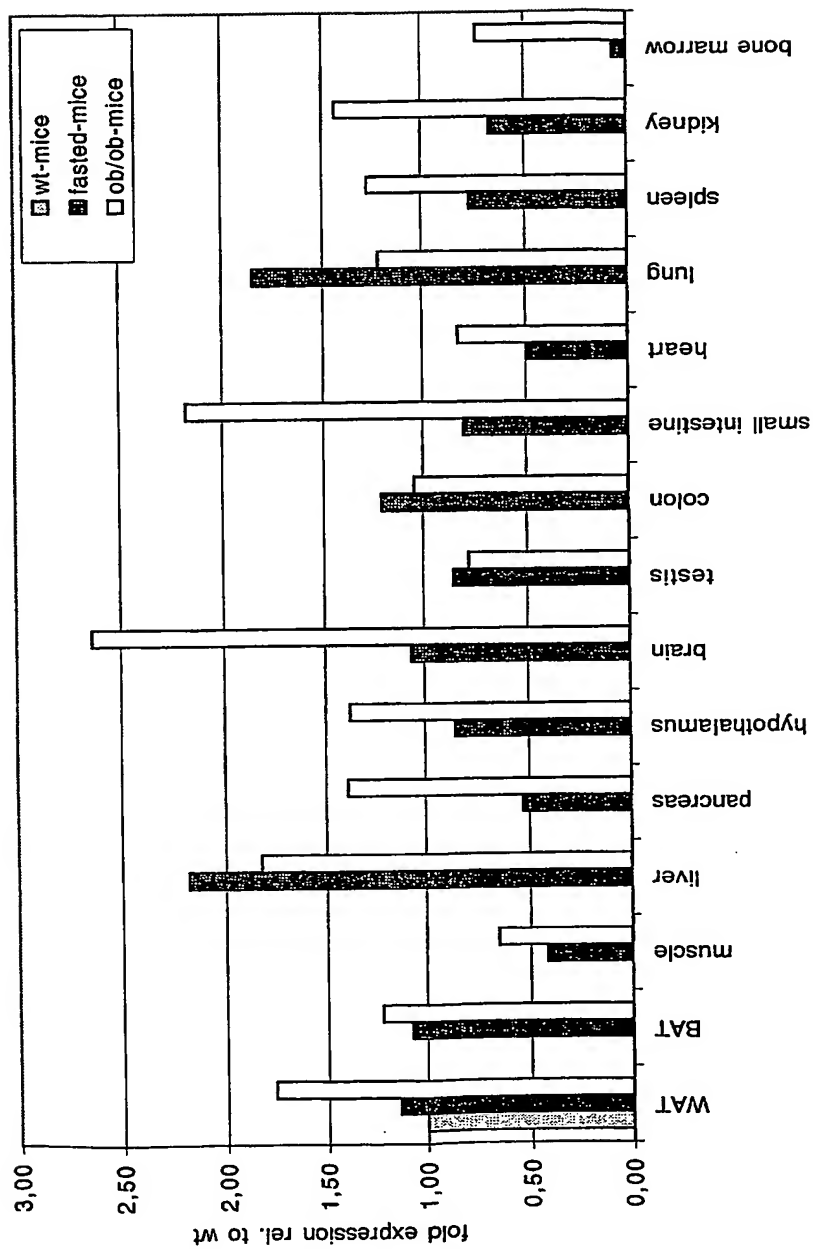


Figure 3C. Real-time PCR analysis of Oaz1 expression in mice fed with a high fat diet compared to mice fed with a control diet

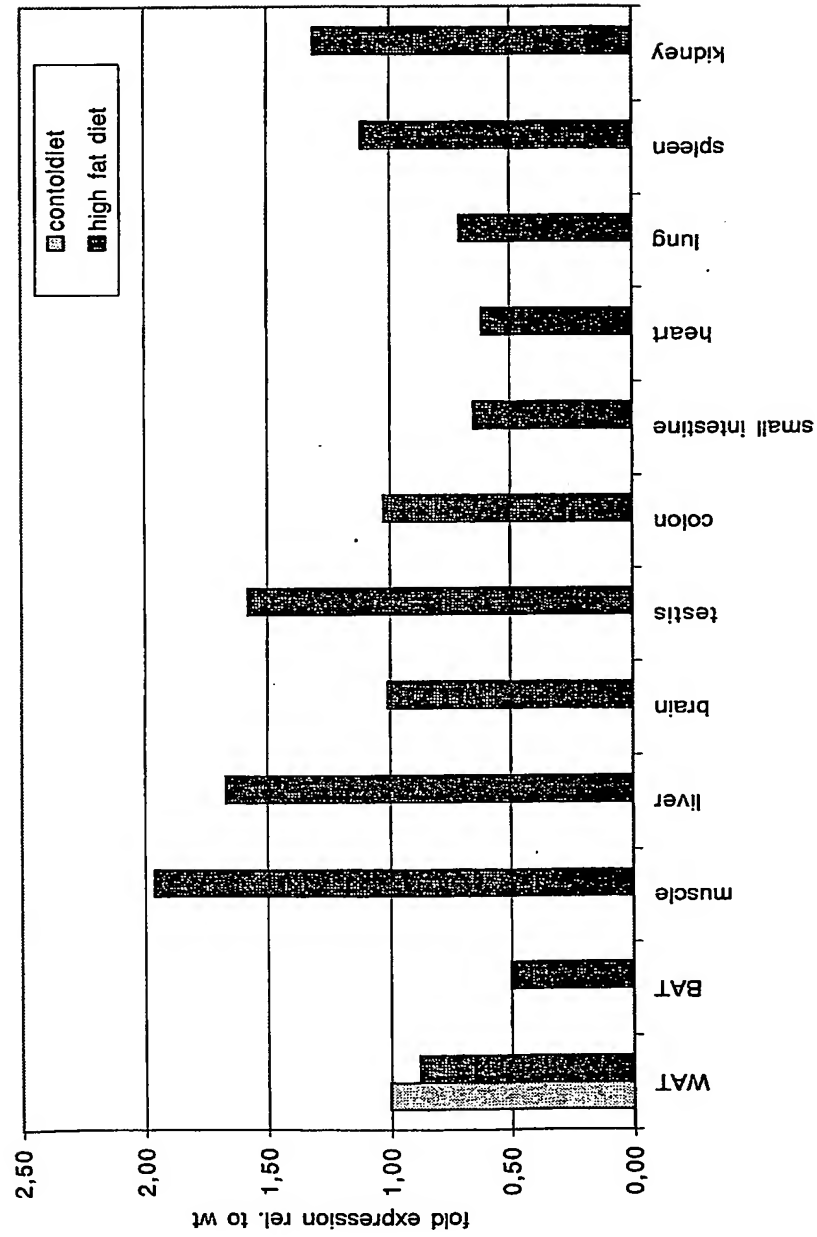


Figure 3D. Real-time PCR analysis of Oaz1 expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

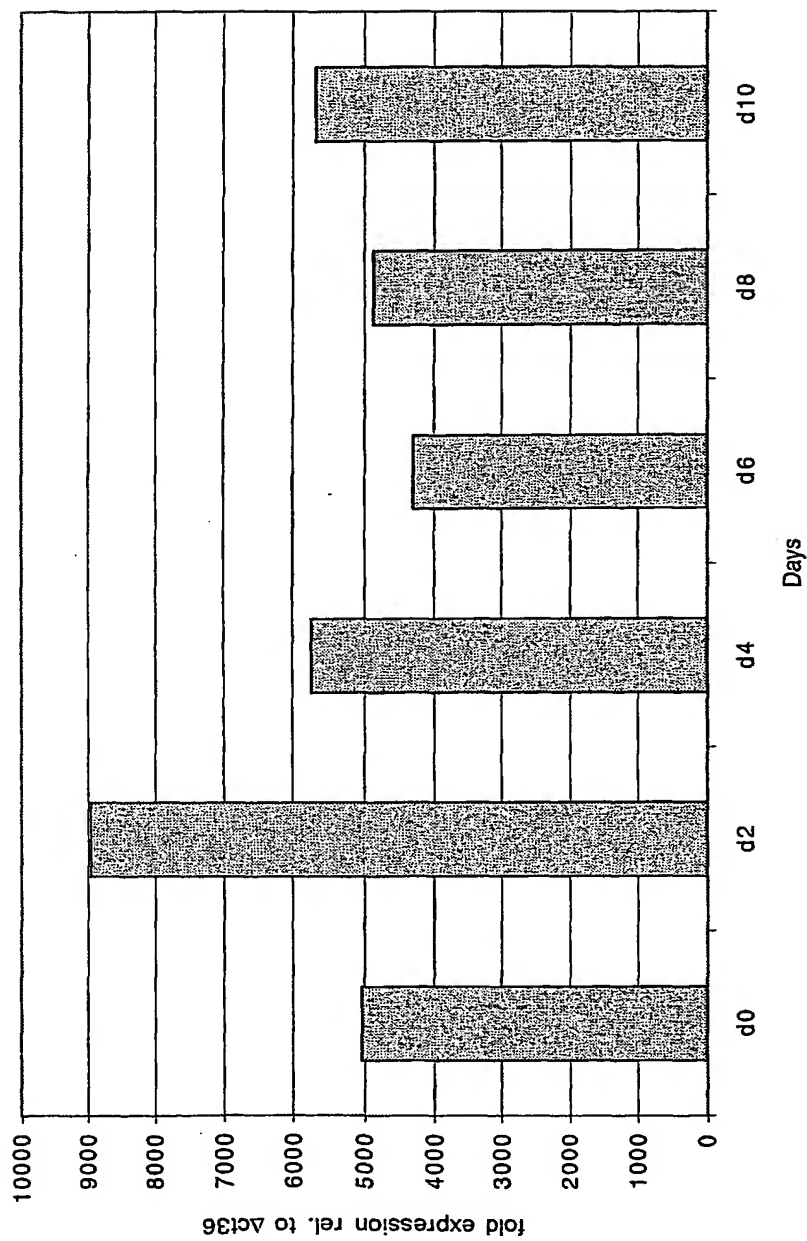


Figure 3E. Real-time PCR analysis of ornithine decarboxylase antizyme 2 (Oaz2) expression in wild type mouse tissues

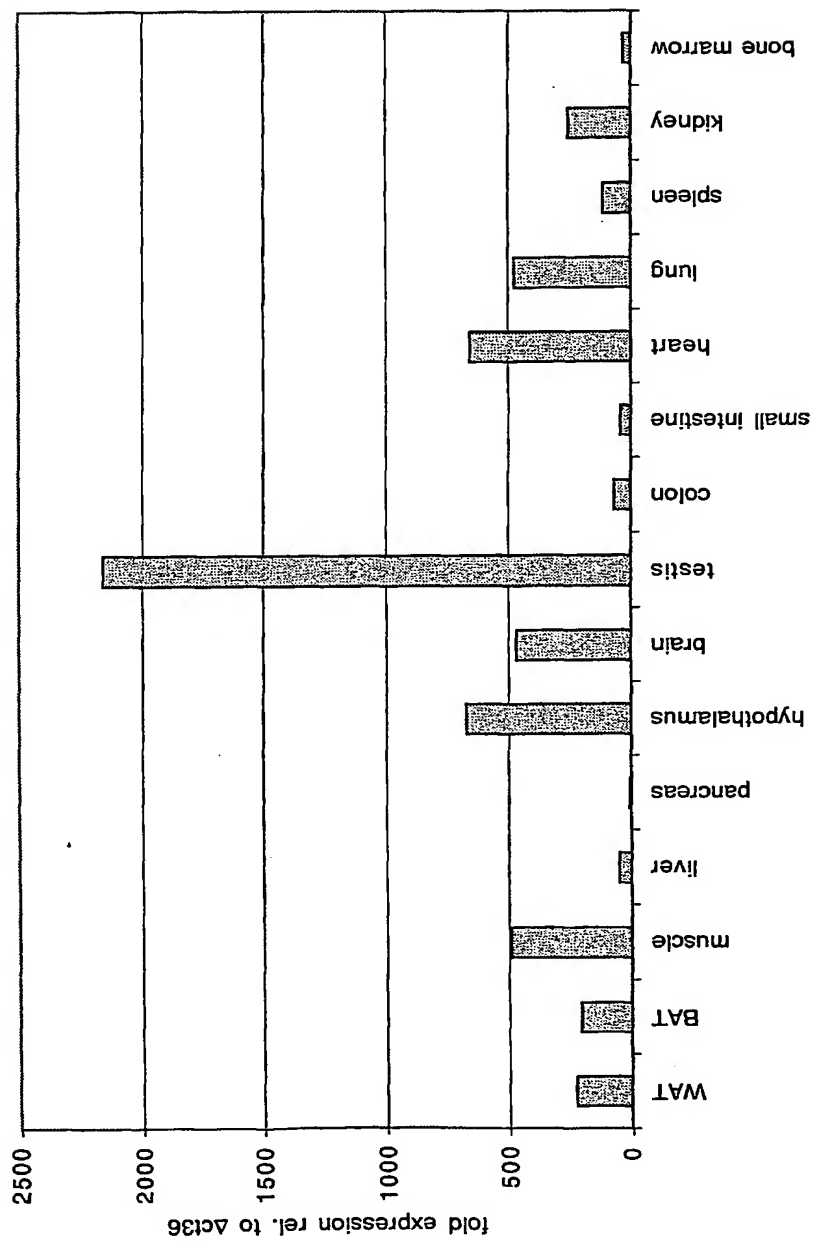


Figure 3F. Real-time PCR analysis of Oaz2 expression in different mouse models

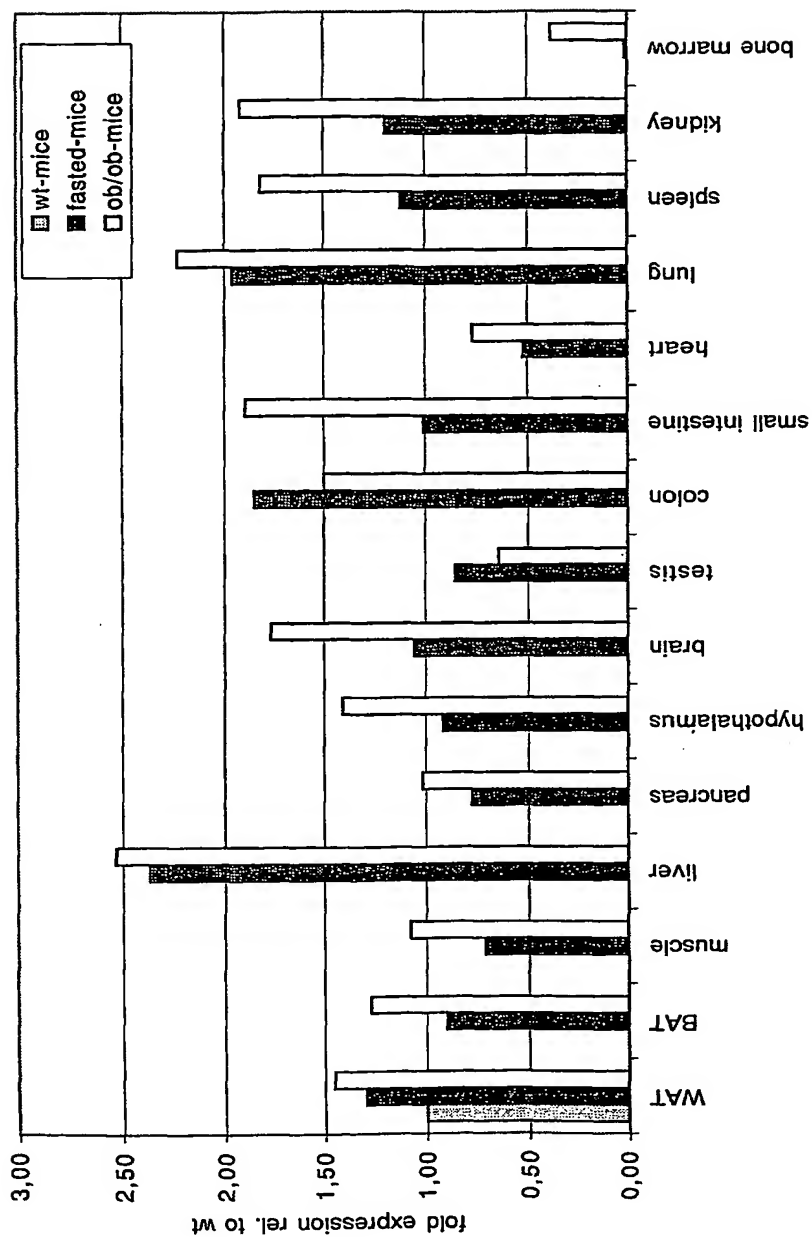


Figure 3G. Real-time PCR analysis of Oaz2 expression in mice fed with a high fat diet compared to mice fed with a control diet

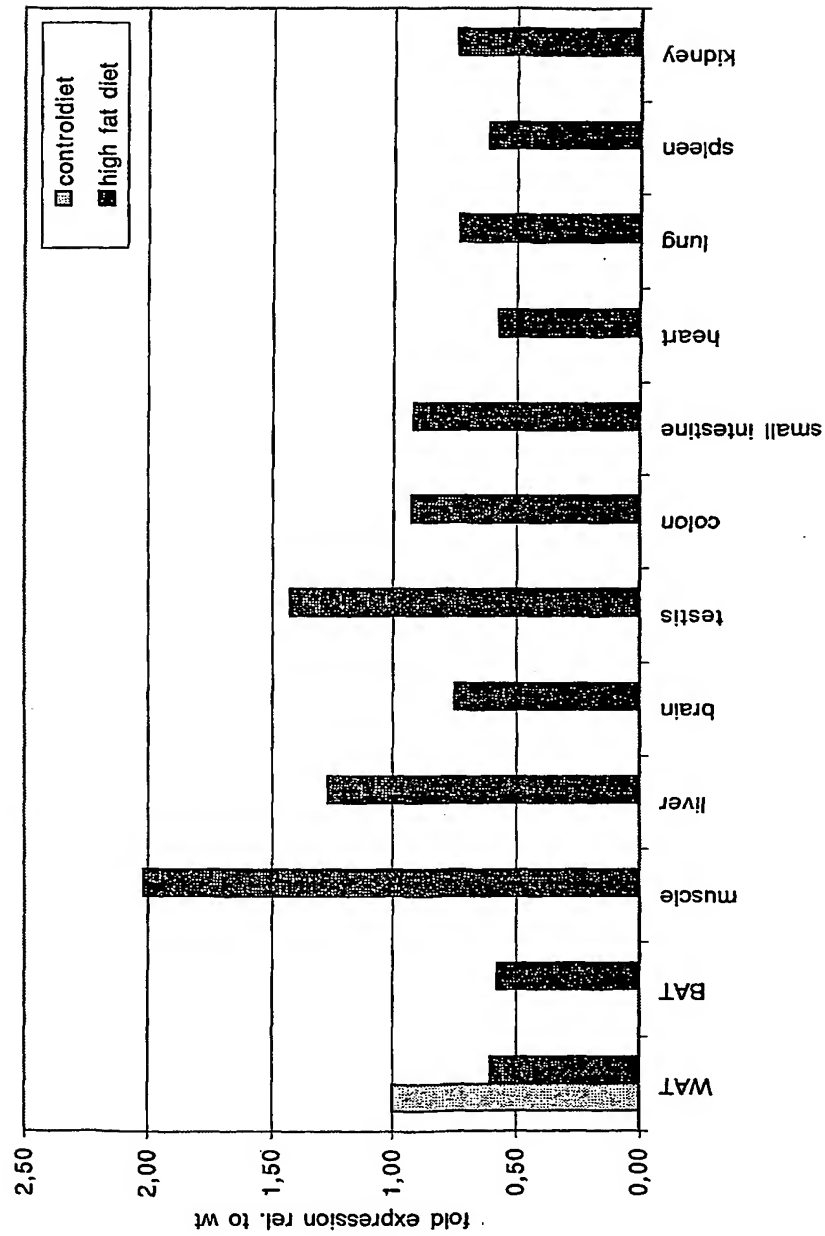
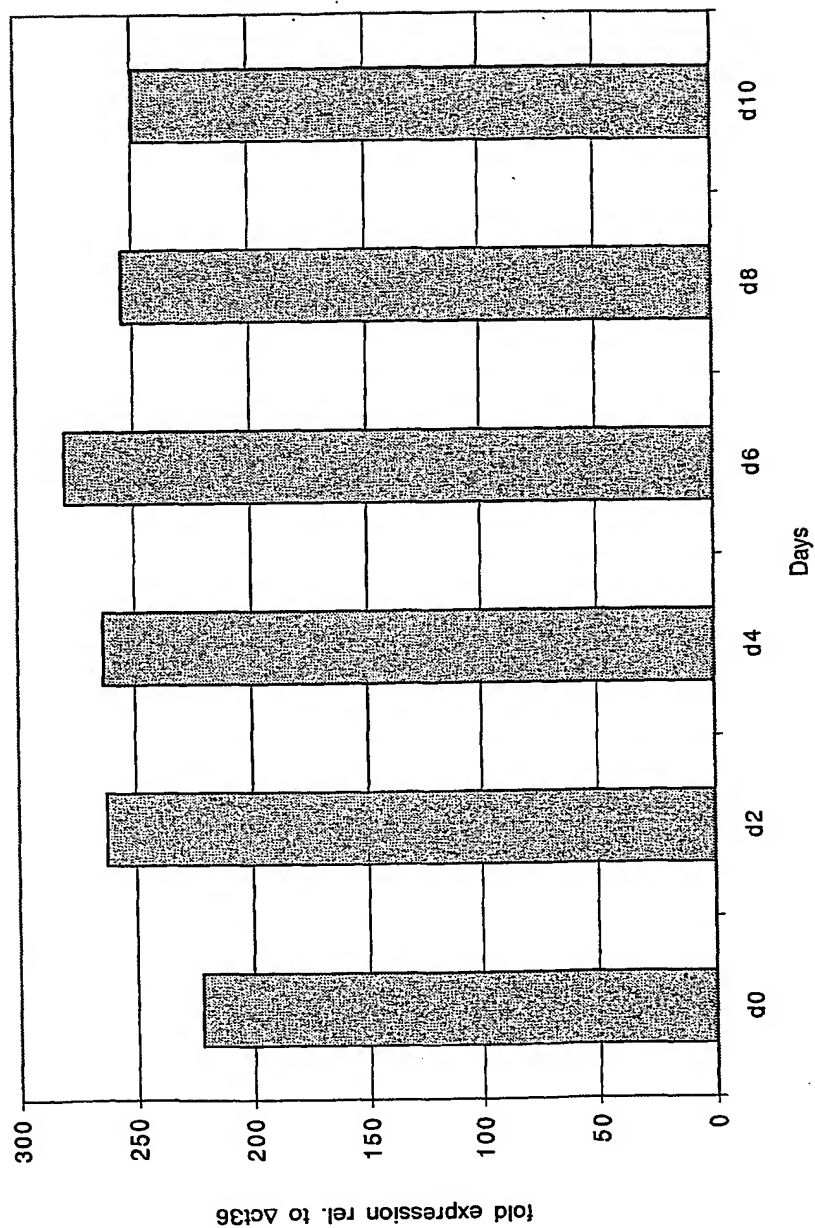


Figure 3H. Real-time PCR analysis of Oaz2 expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes



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Figure 3L. Real-time PCR analysis of ornithine decarboxylase antizyme 3 (Oaz3) expression in wild type mouse tissues

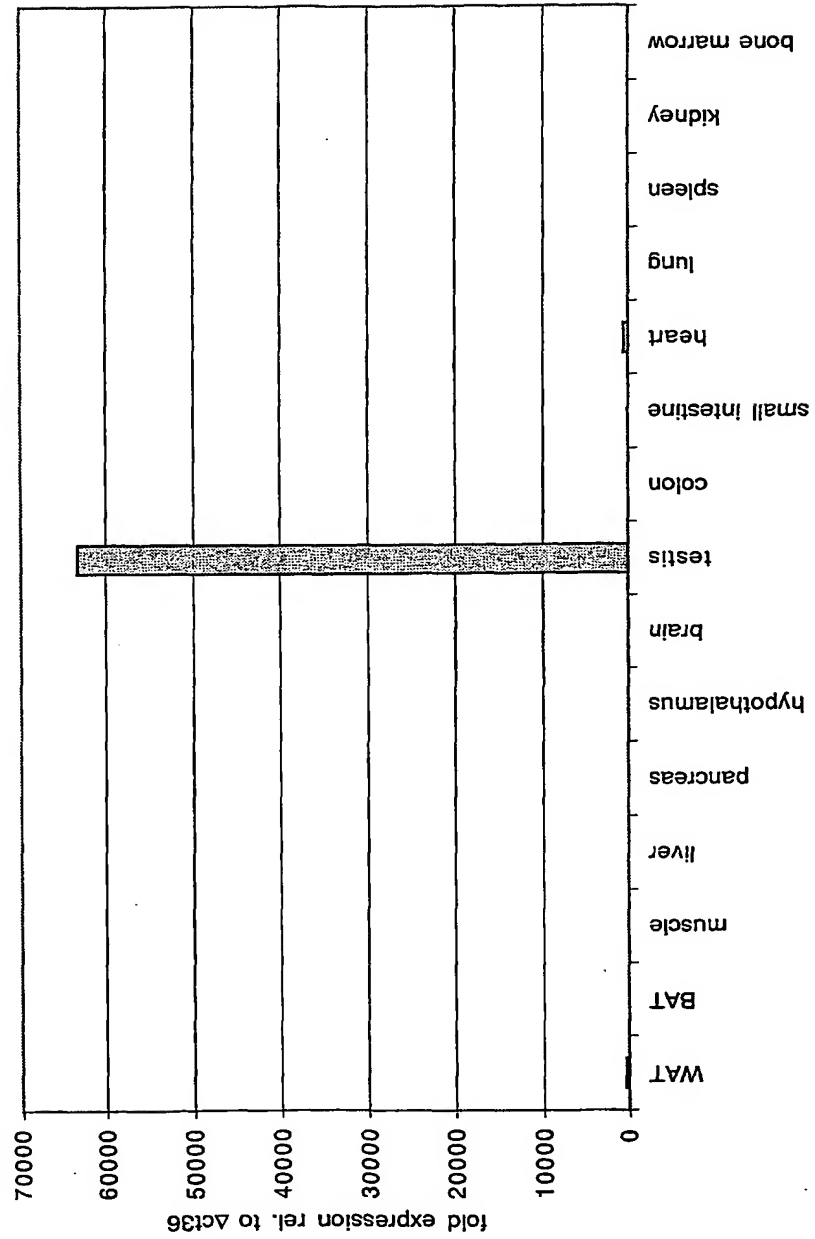


Figure 3J. Real-time PCR analysis of Oaz3 expression in different mouse models

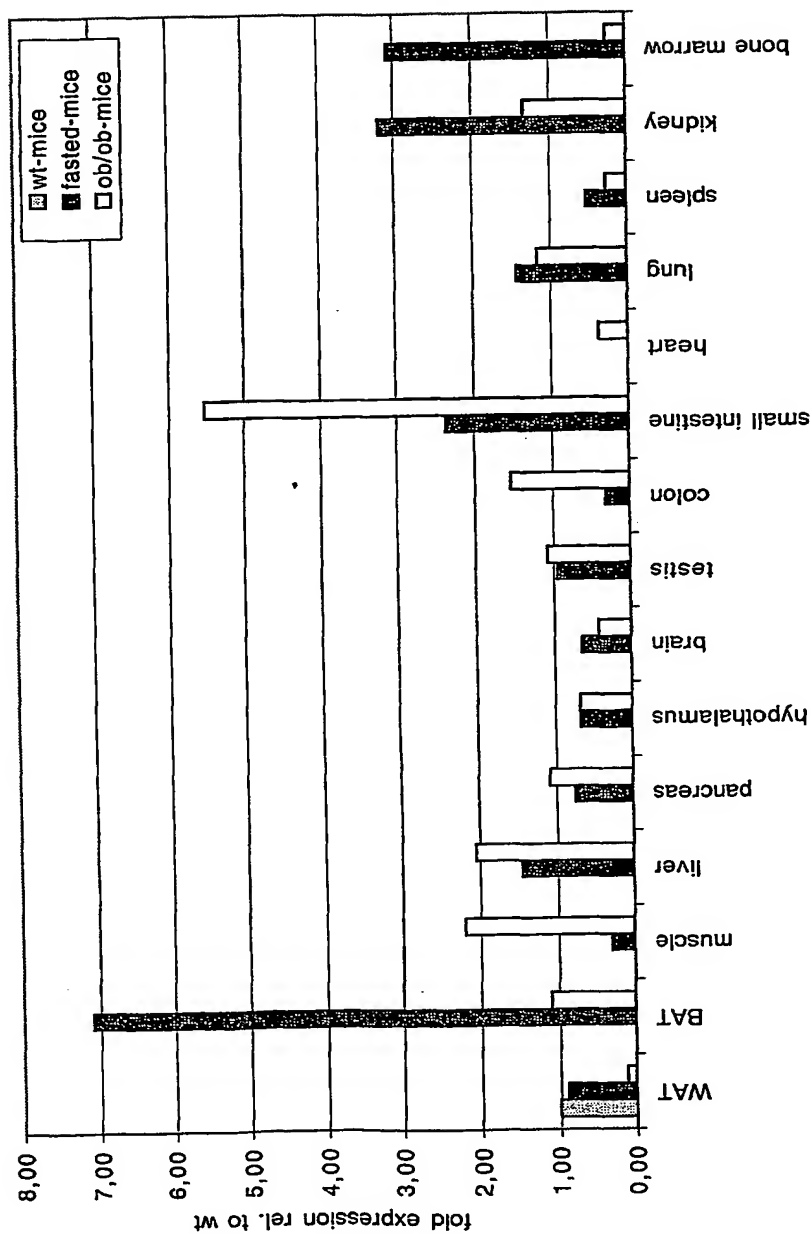


Figure 3K. Real-time PCR analysis of Oaz3 expression in mice fed with a high fat diet compared to mice fed with a control diet

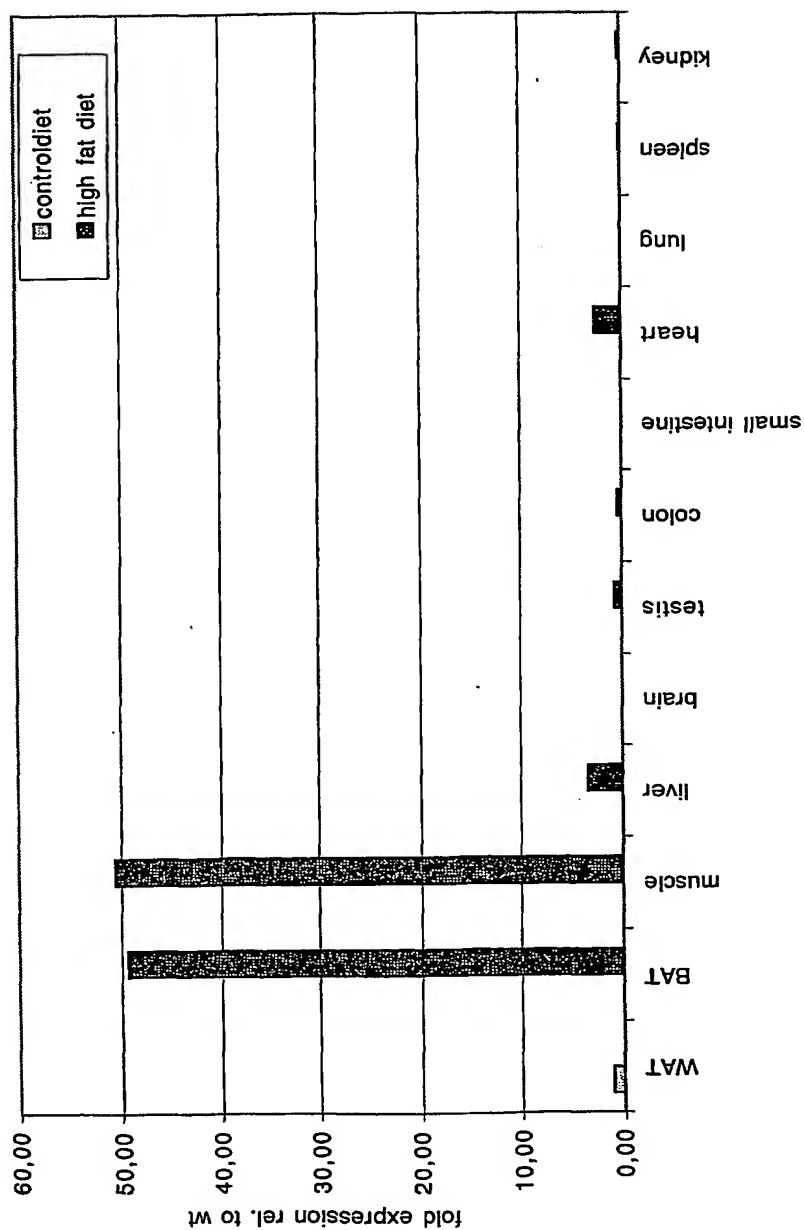


Figure 4. Triglyceride content of a *Drosophila* CG3811 (GadFly Accession Number) mutant

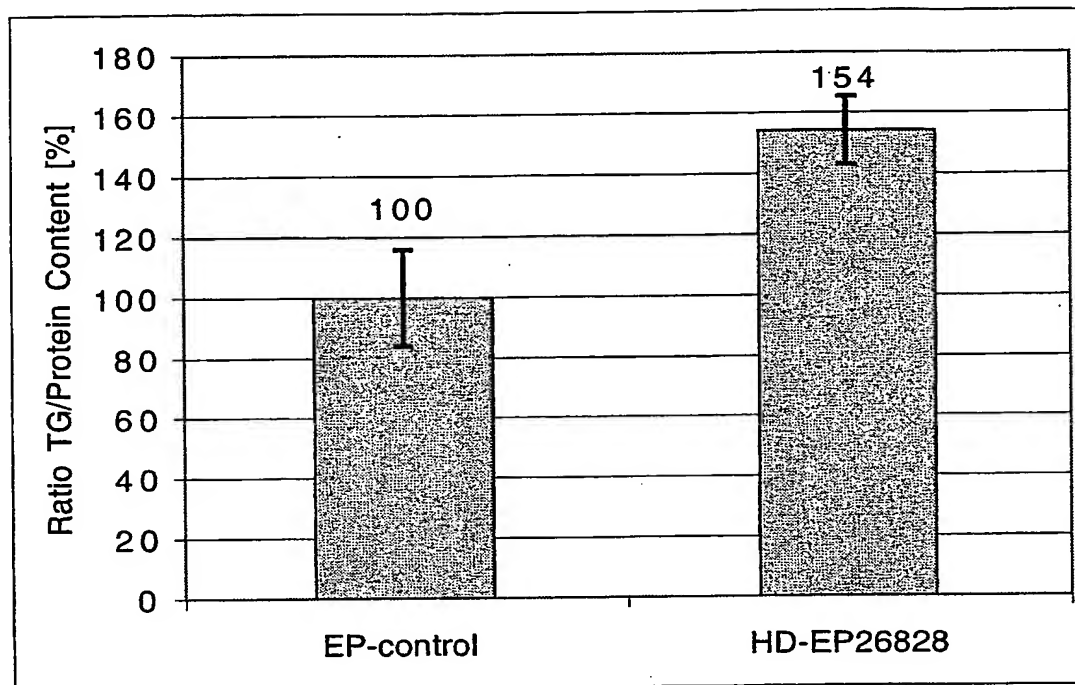


Figure 5. Molecular organization of the CG3811 gene (GadFly Accession Number)

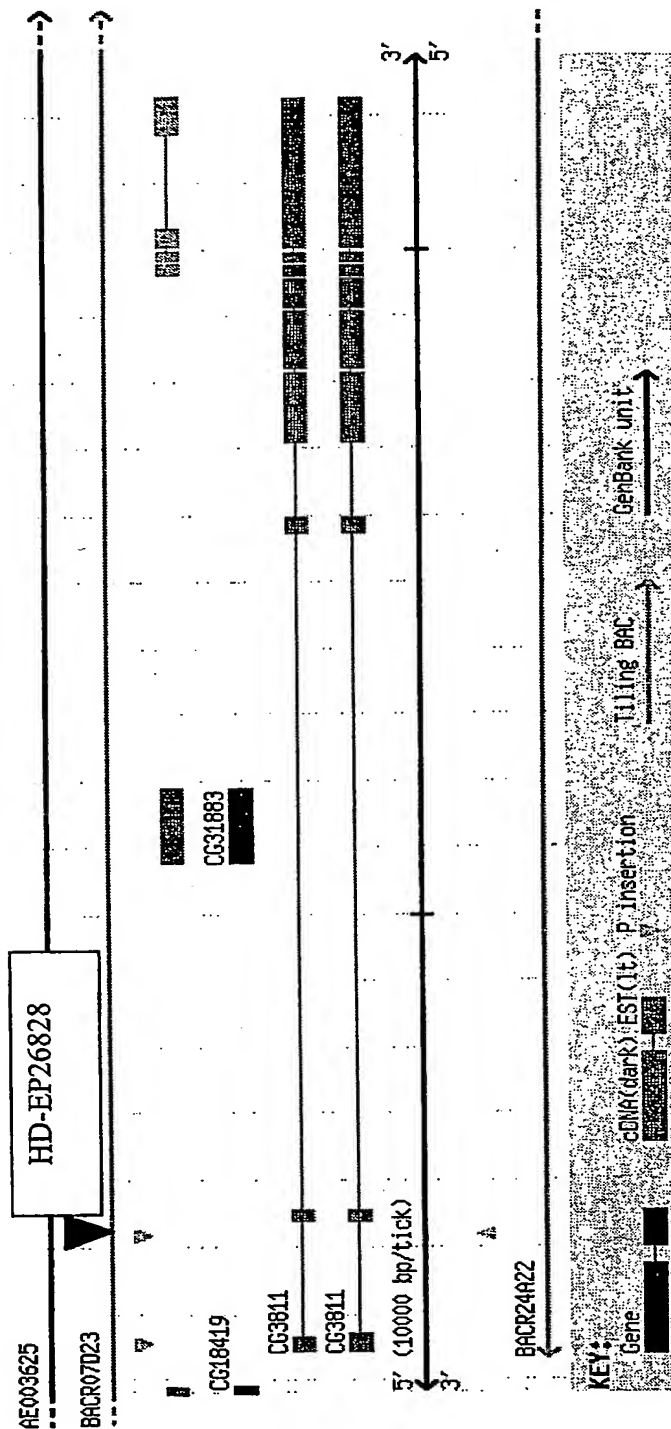


Figure 6. Expression of the CG3811 (GadFly Accession Number) Homolog in Mammalian Tissues

Figure 6A. Real-time PCR analysis of protein similar to organic anion transporter polypeptide-related protein 4 (LOC240726) expression in wild type mouse tissues

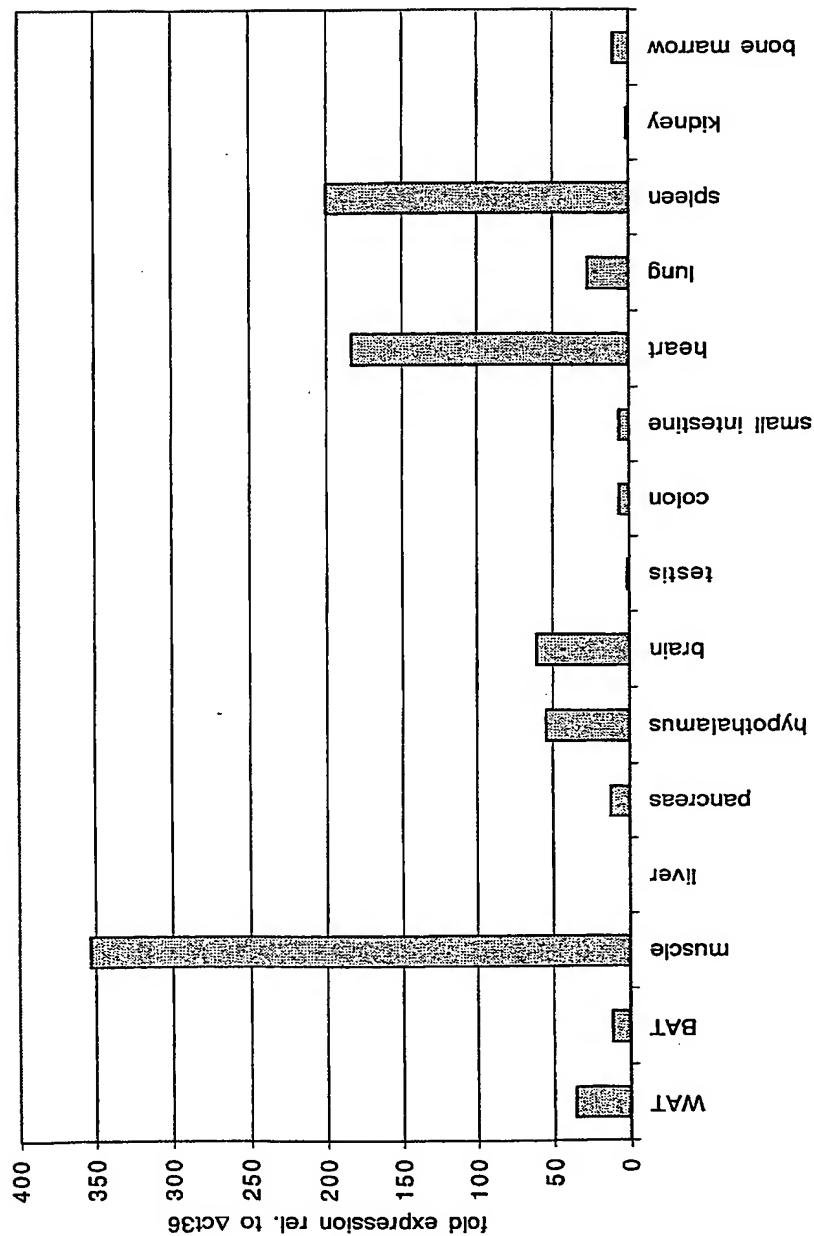


Figure 6B. Real-time PCR analysis of LOC240726 expression in different mouse models

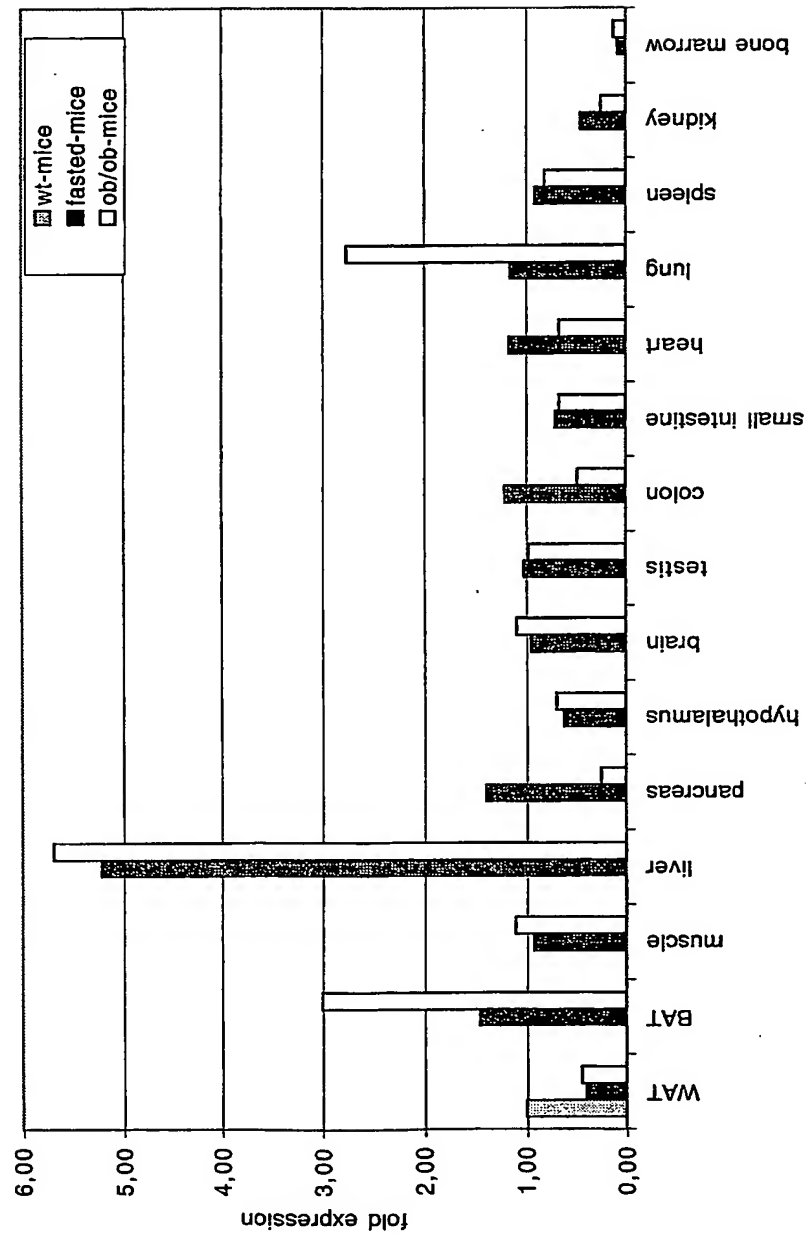


Figure 6C. Real-time PCR analysis of LOC240726 expression in mice fed with a high fat diet compared to mice fed with a control diet

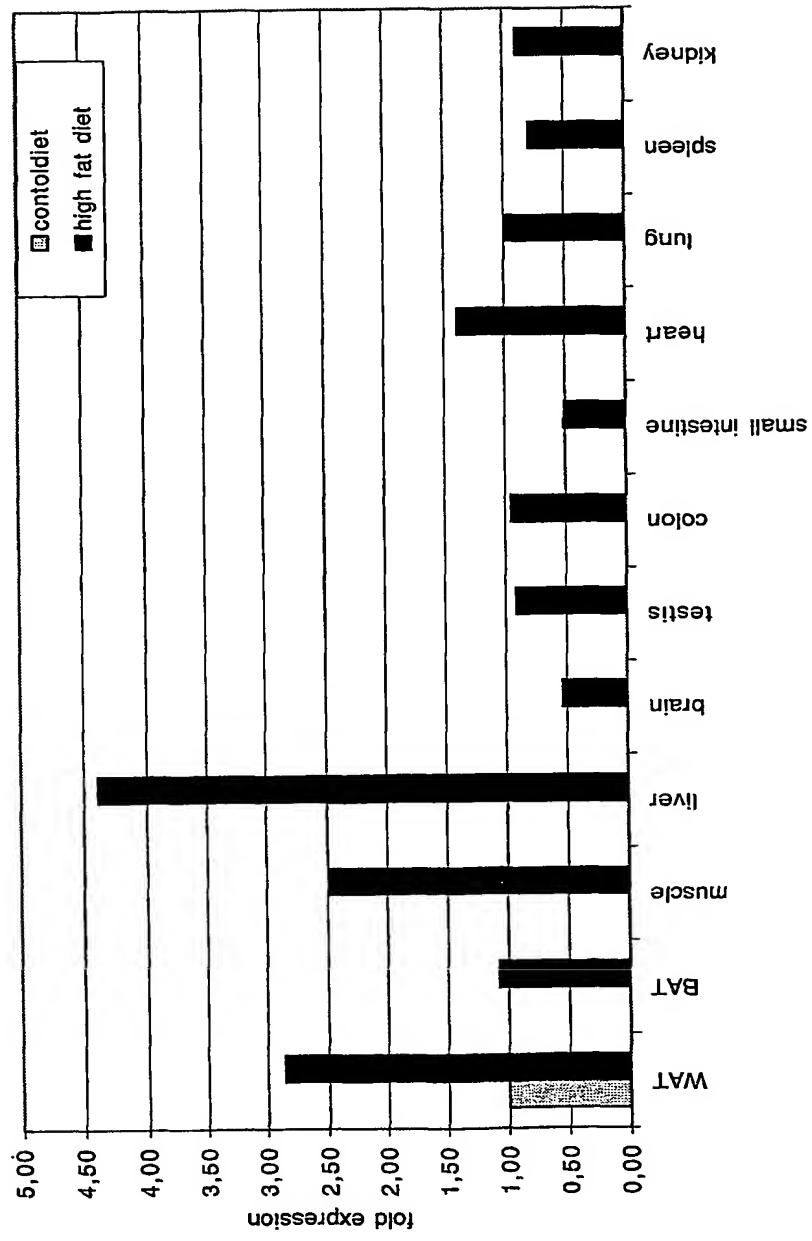


Figure 7. Triglyceride content of a *Drosophila* CG30346 (GadFly Accession Number) mutant

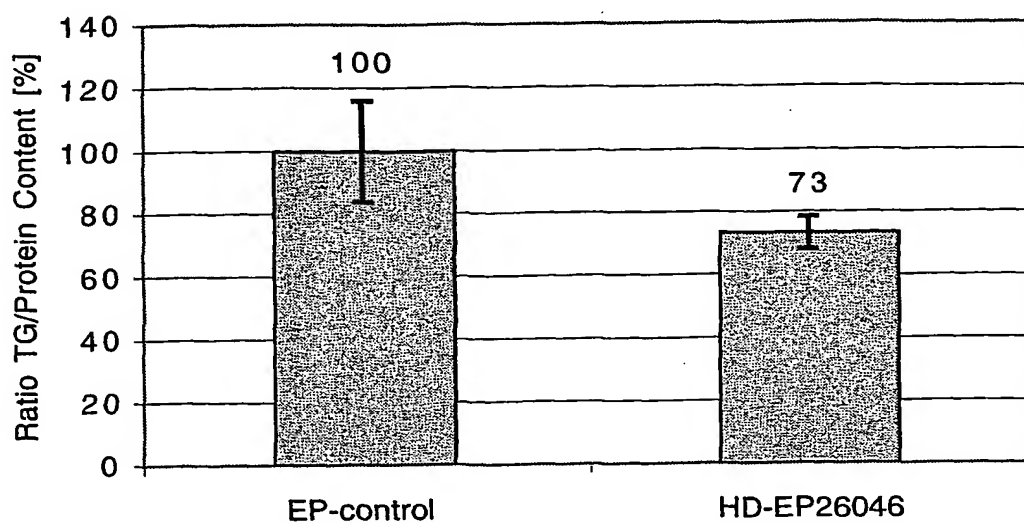


Figure 8. Molecular organization of the CG30346 gene (GadFly Accession Number)

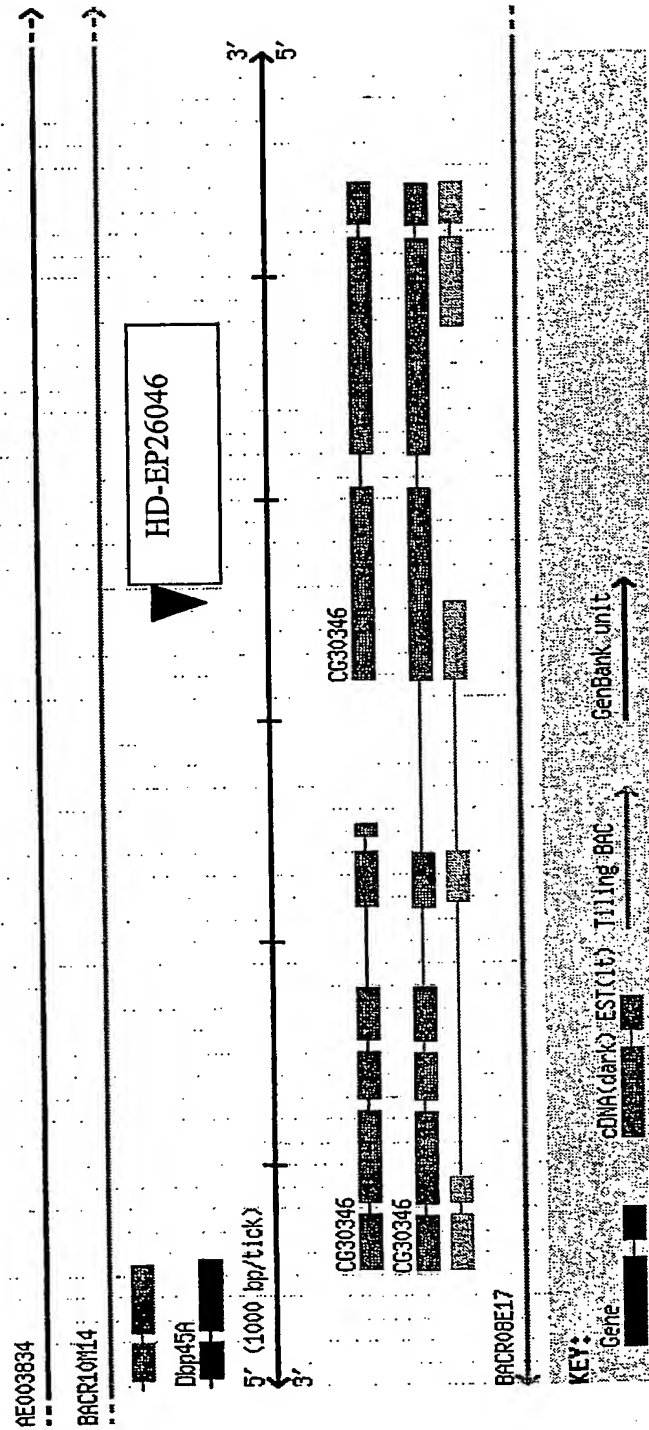


Figure 9. Expression of the CG30346 (GadFly Accession Number) Homolog in Mammalian Tissues

Figure 9A. Real-time PCR analysis of RIKEN cDNA 1110020G09 gene (1110020G09Rik) expression in wild type mouse tissues

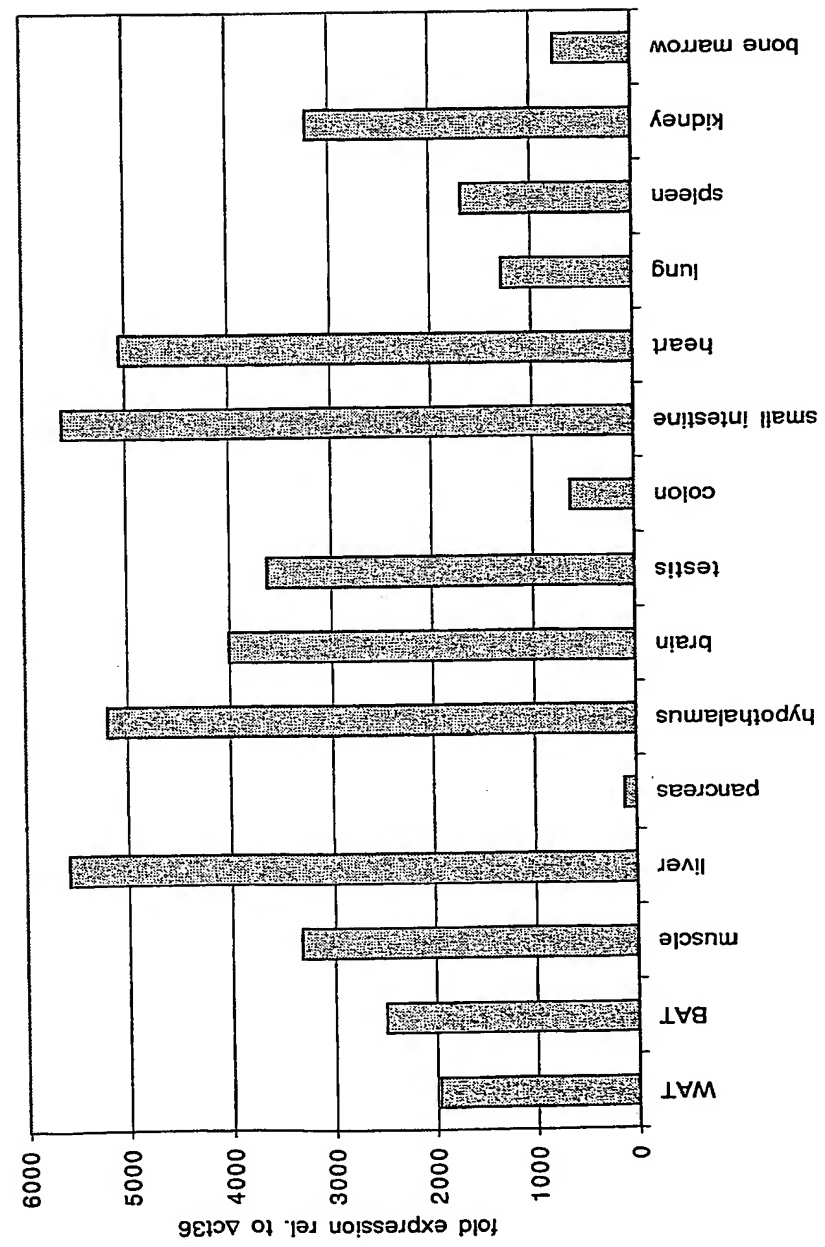


Figure 9B. Real-time PCR analysis of 1110020G09Rik expression in different mouse models

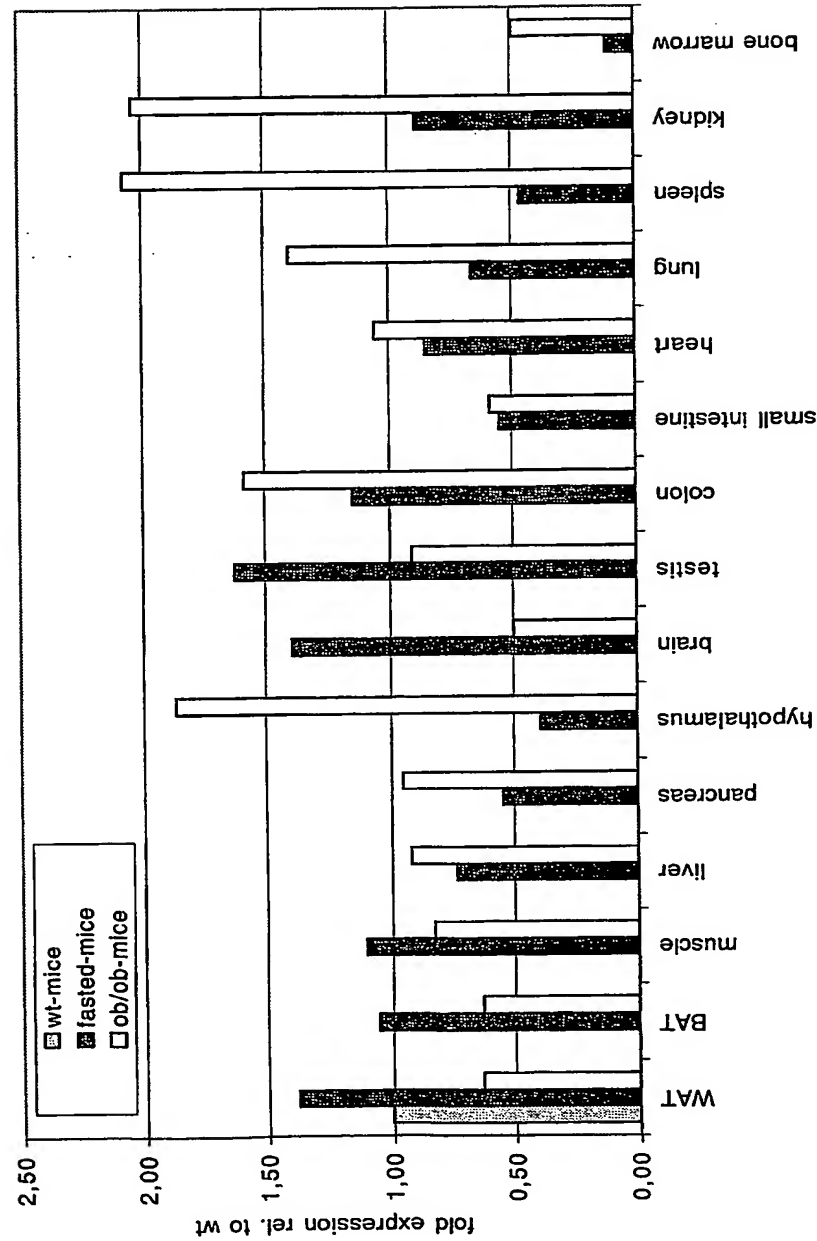


Figure 9C. Real-time PCR analysis of 1110020G09Rik expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

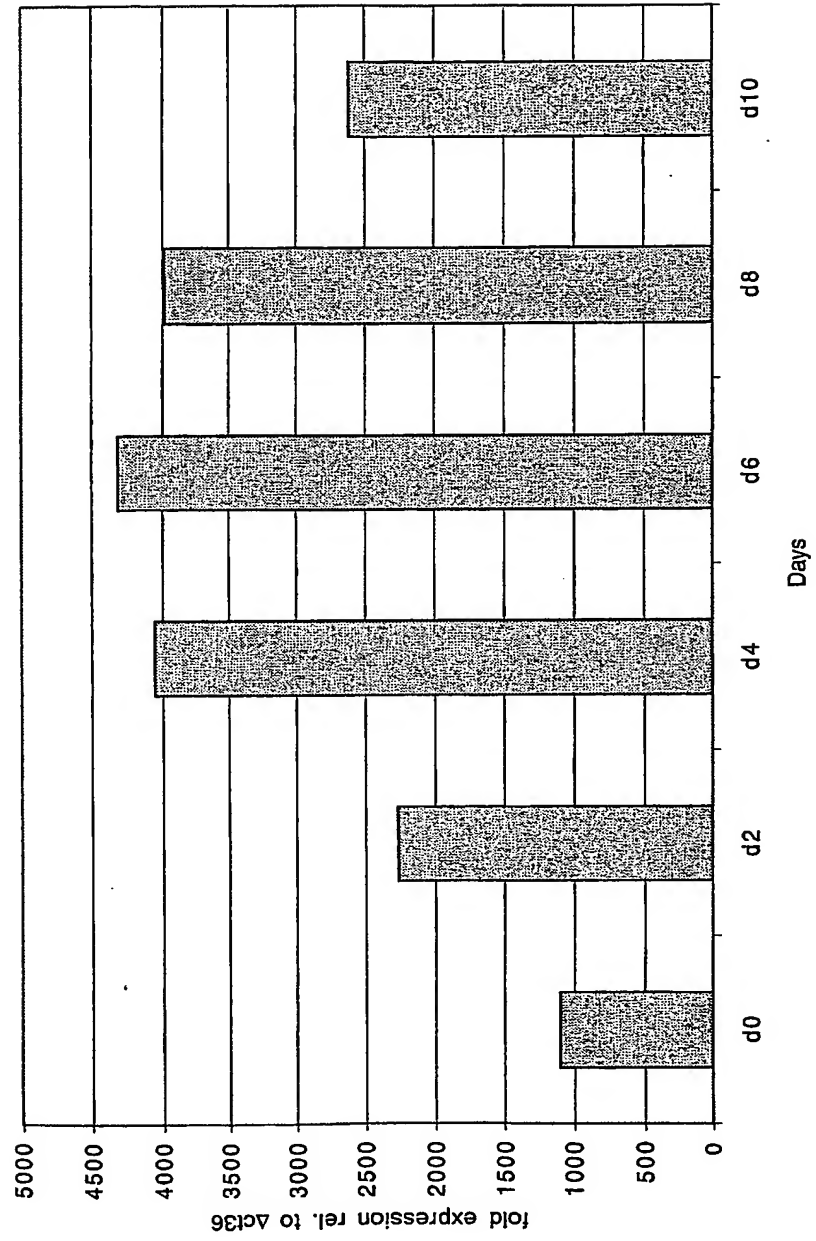


Figure 10. Triglyceride content of a *Drosophila retinal degeneration B* (*rdgB*, GadFly Accession Number CG11111) mutant

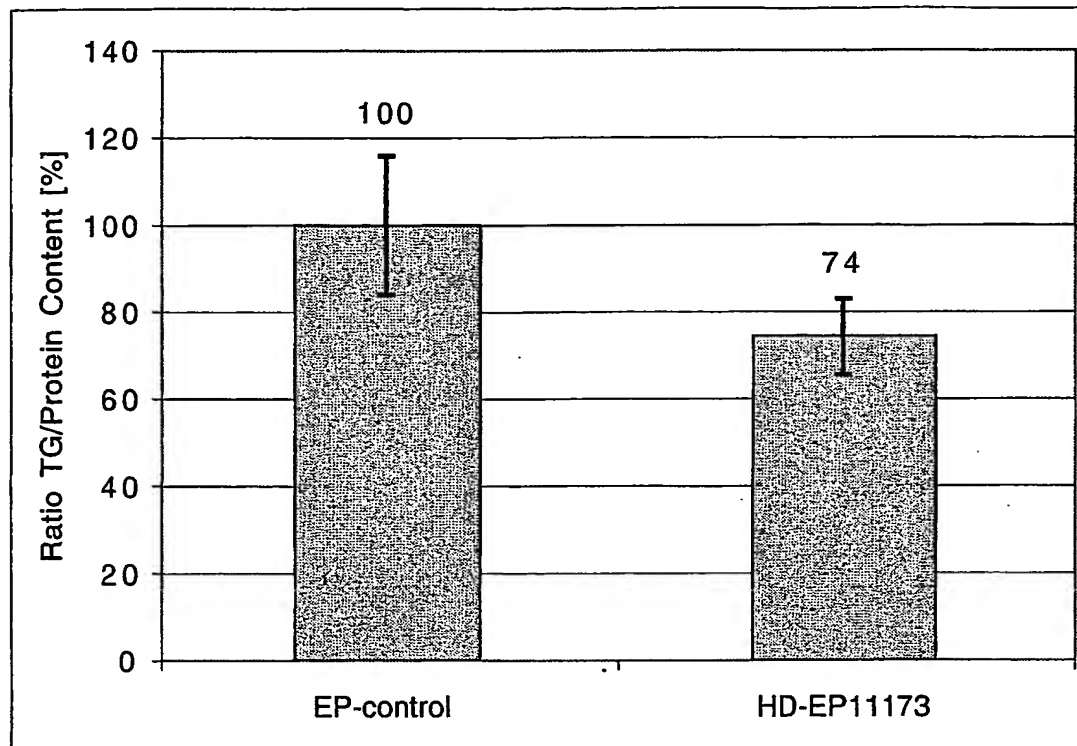


Figure 11. Molecular organization of the retinal degeneration B gene (*rdgB*, GadFly Accession Number CG11111)

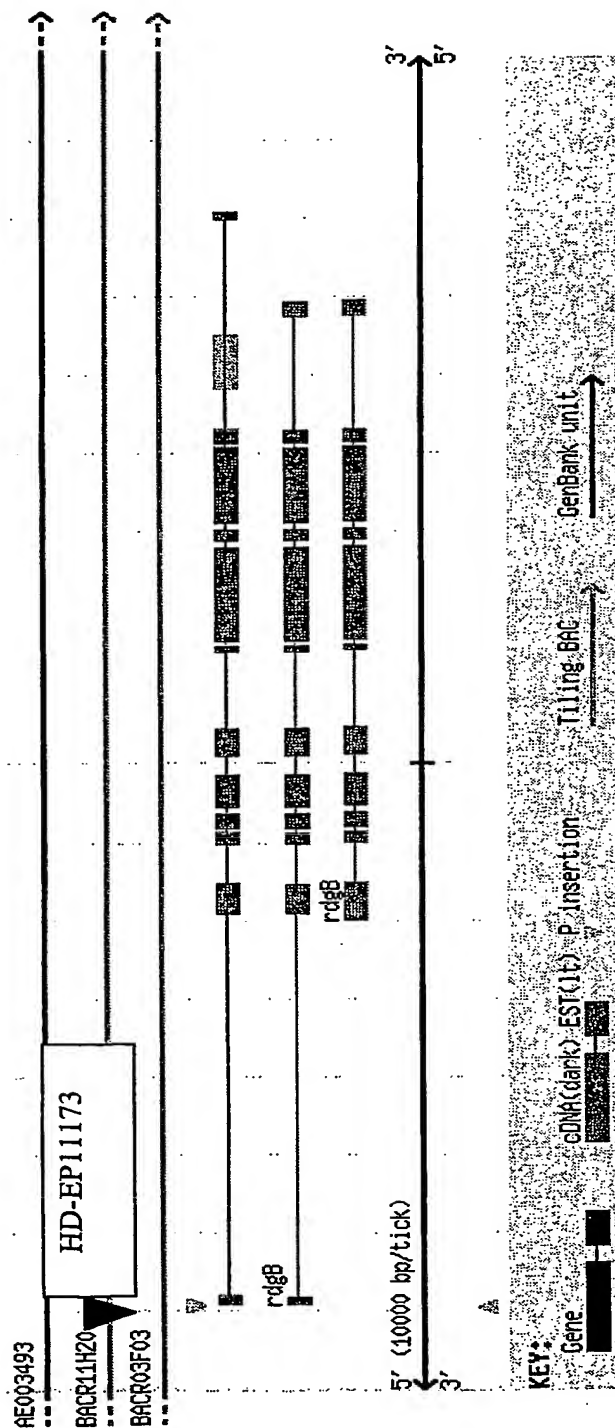


Figure 12. CLUSTAL W (1.82) multiple sequence alignment using the *rdgB* protein sequence:

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NIR1_Hs      -----
PITPNM_Hs    MLIKEYHILLPMSLDEYQVAQLYMIQKKS REESSGEGSGVEILANRPYTDGPGGSGQYTH
CG11111-PB   MLIKEYRIPLPLTVEEYRIAQLYMI AKKSREESHGEGSGVEI IINEPYKDGPGGNGQYTK

NIR3_Hs      KVIYHGMHIPS WFRSILPKAALRVVEESWNAYPYTRTRFTCPFVEKFSIDIETFYKTDAG
NIR1_Hs      -----
PITPNM_Hs    KVIYHVGSHIPGWFRALLPKAALQVEEESWNAYPYTRTRYTCPFVEKFSIEIETYYLPDGG
CG11111-PB   KIIYHVG NHLPGWIKSLLPKSALTVEEEAWNAYPYTRTRYTCPFVEKFSLDIETYYYPDNG

NIR3_Hs      ENPDVFNLS PVEKNQLTIDFIDIVKDPVPHNEYKTEEDPKLFQSTKTQRGPLSENWIEEY
NIR1_Hs      -----
PITPNM_Hs    QQPNVFNLSGAERRQRILD TIDIVRDAVAPGEYKAEEDPRLYHSVKTGRGPLSDDWART-
CG11111-PB   YQDNV FQLSGSDLNRNRIVDVIDIVKDQLWGGDYVKEEDPKHFVSDKTGRGPLAEDWLEEY

NIR3_Hs      KKQVF-----PIMCAYKLCKVEFRYWGMQSKIERFIHDTGLRRVMVRAHRQAWCW
NIR1_Hs      -----
PITPNM_Hs    AAQTG-----PLMCAYKLCKVEFRYWGMQAKIEQFIHDVGLRRVMLRAHRQAWCW
CG11111-PB   WREVKGKKQPTPRNMSLMTAYKICRVEFRYWGMQTKLEKFIHDVALRKMMMLRAHRQAWAW

NIR3_Hs      QDEWYGLSMENIRELEKEAQLMLS SRKMAQFNEDGEEATEL-----VKHEAVSDQ-----
NIR1_Hs      -----
PITPNM_Hs    QDEWTELSMADIRALEEETARMLA QRMACNTGSEGSEAQPPGKPSTEARSAASN-----
CG11111-PB   QDEWFGLTIEDIRELERQTQLALAKKMG GGECSDDSVSEPYVSTAATAASTTG SERKKS

NIR3_Hs      -----TSGEPPPEPSSSN--GEPLVGRGLKKQWSTSSKSSRSSKR GASPSRH-----
NIR1_Hs      -----AGGPPP-----GGGAP-----
PITPNM_Hs    -----TGTPDGPEAPPG--PDASPDASFGKQWSSSSRSSYSSQHGGAVSPQ-----
CG11111-PB   APAVPPIV TQQPPSAEASSDEEGEEEDDDDEDENDAIGTGVDLSANQGGSAQRSRSQS IQ

NIR3_Hs      -----SISEWRMQSIARDSDESSDDEFFDAHEDLSDTEEM
NIR1_Hs      -----WHLRNVLSDSVESSDDEFFDAREEMAEGKNA
PITPNM_Hs    -----SLSEWRMQNIARDSENSSEEEFFDAHEGFSDSEEV
CG11111-PB   MAQKGKFGSKGALHSPVGS AHSFDLQVANWRMERLEVDSKSN SDEEFFDCLDTNETNSLA

NIR3_Hs      FPKDITKWSSNDLMDKIESPEPEDTQDG-----LYRQGAPEFRVASSV--EQLN-
NIR1_Hs      ILIGMSQWNSNDLVEQIETMGKLDEHQEGTAPCTSSILQEKQRELYRVSLRR--QRFP A
PITPNM_Hs    FPKEMTKWNSNDFIDAFASP---VEAEG-----TPEPGAEEAAKGIEDG--AQAPR
CG11111-PB   KWS SLELLGEGDSDPPPHGGPSSAASVGGRGNSRQEDSIFNQDFLMRVASERGNKRQLRS

NIR3_Hs      ----IIEDEV S--QPLAAPPSKIHVLLLVLHGGTILDTGAGDPSSKKGDANTIANVFDTV
NIR1_Hs      QGSIEIHEDSE--EGCPQRSCKTHVLLLVLHGGNILD TGAGDPSCKAADIHTFSSVLEKV
PITPNM_Hs    D---SEGLDGA--GELGAEACAVHALFLILHSGNILD SGPGDANSKQADVOTLSSAFEAV
CG11111-PB   SASVDRSHDSSPPGSPSTPSCPTTILILV VHAGSVLDAAS-ELTAKKSDVTTFRGSFEAV

NIR3_Hs      MRVHYP SALSALGRLAIRLVPCPPVCSDAFALVSNLSPYSHDEGCLSSSQD--HIPLAALPL
NIR1_Hs      TRAHFPAALGHILIKFVPCPAICSEAFSLVSHLNPYSHDEGCLSSSQD--HVPLAALPL
PITPNM_Hs    TRIHFPEALGHVALRLVPCPPICAAAYALVSNLSPYSHDGDLSRSQD--HIPLAALPL
CG11111-PB   MRQHYP SLLTHVTIKMVPCPSICTDALGILSSSLSPYSFDASPSAADIPNIADVPIGA IPL

NIR3_Hs      LATSSPQYQEAVATVIQRANLAYGDFIKSQEGMTFNGQVCLIGDCVGGILAFDALCYSNQ
NIR1_Hs      LAISSPQYQDAVATVIERANQVYREFLKSSDGIGFSGQVCLIGDCVGGLLAFDAICY SAG
PITPNM_Hs    LATSSSR YQGAVATVIARTNQAYS AFLRSP EGAGFCGQVALIGDGVGGILGFDALCHS AN
CG11111-PB   LSVASPEFHETVNKTVA AANIVYHEFLKSEEGHGFSGQIVMLGDSMGSLLAYEALCRSNG

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NIR3_Hs PVSES-QSSSRGVSVMQDNDLLSPGILMNAAHCCGGGGGGGGGGSSGGGGSSGGSSL
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 PITPNM_Hs AGTGS-RGSSRRGSMNNELLSPEFG-----PVRDPLA
 CG11111-PB SQPGTASGASNSGGDAATN-----I

NIR3_Hs ESSRHLSRSNVDIPRSNGTEDPKRQLPRKRSDSSTYELDTIQHQAFLLSSLHASVLRTEP
 NIR1_Hs ASSKRLSKSNIDISSGLEDEEPPKRPLPRKQSDSSTYDCEAITQHHAFLSSIHSSVLKDES
 PITPNM_Hs DGVEGLGRGSPEPS-----ALPPQRI PSDMASPEPEGSQNSLQAAPATTSSWEPRRASTA
 CG11111-PB NTHNPLSPRN-----SRLDDDERFIEADLDAKRLLVAPSPRRRRSS

NIR3_Hs CSRHSSSSTMLDGTGALGRFDFEITDLFLFGCPLGLVLALRKTVIPALDVFQLRPACQQV
 NIR1_Hs ETPAAGGPQLPEVS--LGRFDFDVSDFFLFGSPLGLVLAMRRTVLPGLDGFQVRPACSQV
 PITPNM_Hs FCPPAASSEAPDGPSSTARLDFKVSGFFLFGSPLGLVLALRKTVMPALEAAQMRPACQEI
 CG11111-PB SSDSRAT-----KLD FEVCDFFMFGSPLSVVLAARK--LHDAKAALPRPNCHQV

NIR3_Hs YNLFHPADPSASRLEPLLERRFHALPPFSVPRYQRYPLGDGCSTLLADVLQTHNAAFQEH
 NIR1_Hs YSFFHCADPSASRLEPLLEPKFHLVPPVSVPRYQRFPLGDGQSLLLADALHTHSPLFLEG
 PITPNM_Hs YNLFHAADPCASRLEPLLAPKFQAIAPLTVPRYQKFPLGDGSSLLADTLQTHSSLFLEE
 CG11111-PB YNLFHPTDPIASRLEPLLSARFSILAPVNVPRYAKYPLGNGQPLHLLLEVIQSHPOHFNDG

NIR3_Hs GAPSSPGTAPASRGFRASEISIASQVSGMAESYTASSIAQKAPDALSHTPSVRRLSLLA
 NIR1_Hs SSRDSPPLLDAPASPPQASRFQRPGRRMSEGSSHSES---SESSDSMAPVGASR-----
 PITPNM_Hs LEMLV PSTPTSTSG-----AFWKGSELATDPPAQAAP--STTSEVVK-----
 CG11111-PB NNLLAGRRLSDASMQSTISGLIENVSLSTIHA-----

NIR3_Hs LPAPSPTTPGPHPPARKASPGLERAPGLPELDIGEVAAKWWGQKRIDYALYCPDALTAFF
 NIR1_Hs -----ITAKWWGSKRIDYALYCPDVLTAFF
 PITPNM_Hs -----ILERWWGTRKIDYSLYCPALTAFF
 CG11111-PB -----LQNKWWGTRKLDYALYCPGLSNFP

NIR3_Hs TVALPHLFHASYWESTDVVSFLLRQVMRHD-NSSILELDGKEVSVFTPSKPREKWQRKRT
 NIR1_Hs TVALPHLFHASYWESTDVVAFILRQVMRYE-SVNIKESARLDPAALSPANPREKWLRKRT
 PITPNM_Hs TVTLPHLFHASYWESADVAFILRQVIEKE-RPQLAECE--EPSIYSPAFPREKWQRKRT
 CG11111-PB AHALPHLFHASYWESPDVIAFILRQIGKFEGIPFVGSNDDKDNASFHPGQPREKWIKRT

NIR3_Hs HVKLRNVTANHRINDALANEDGPQVLTGRFMYGPLDMVTLTGEKVDVHIMTQPPSGEWLY
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 CG11111-PB SVKLKNVAANHRANDVIVQEGREQRLNARFMYGPLDMITLHGEKVDVHIMKDPPAGEWTF

NIR3_Hs LDTLVTNNSGRVSYTIPESHRLGVGVPIKMVVRGDHTFADSYITVLPKGTEFVVF SIDG
 NIR1_Hs LDTEITNSSGRITYNVPRPRRLGVGVYPVKMVVRGDQTCAMSYLTVLPRGMECVVFSIDG
 PITPNM_Hs FGTEVTNSSGRLTFPVPPERALGIGVYPVRMVVRGDHTYAECCLTVVARGTEAVVFSIDG
 CG11111-PB LSTEVTDKNGRISYSIPDQVSLGYGIYPVKMVVRGDHTSVDCYMAVVPPLTECVVFSIDG

NIR3_Hs SFAASVSIMGSDPKVRAGAVDVVRHWQDLGYLIIYVTGRPDMQKQRRVVAWLASHNFPHGVS
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 CG11111-PB SFTASMSVTGRDPKVRAGAVDVCRHWQELGYLLIYITGRPDMQQRVVSVWLSQHNFPHGL

NIR3_Hs VSFCDLVHDPLRHKANFLKLLISELHLRVHAAYGSTKDVAVYSAISLSPMQIYIVGRPT
 NIR1_Hs IFFSDGLVHDPLRQKAIFLRNLMQECFIKISAAYGSTKDISVSVLGLPASQIFIVGRPT
 PITPNM_Hs VSFCDLTHDPLRQKAMFLQSLVQEVGLNIVAGYGS PKDVAVYTALGLSPSQTYIVGRAV
 CG11111-PB ISFADGLSTDPLGHKTAYLNNLVQNHGISITAAYGSSKDISVYTNVGMRTDQIFIVGKVG

NIR3_Hs KKLQQQCQFITDGYAAHLAQLKYSHRARPARNTATRMALRKGSFGLPGQGDFLRSRNHLL

NIR1_Hs KKYQTQCQFLSEGYYAAHLAVLEASHRSRPKKNNS-RMILRKGSFGLHAQPEFLRKRNHLR
PITPNM_Hs RKLQAQCQFLSDGYVAHLGQLEAGSHSHASSGPP-RAALGKSSYGVAAPVDFLRKQSOLL
CG11111-PB KKLQSNATVLSDGYYAAHLAGLQAVGGSRPAKGNA-RMVI PRGCFNLPQQTANPRRR----

NIR3_Hs RTISAQ---PSGPPSHRHERTQSQADGEQRGQRSMSVAAGCWGRAMTGRLEPGAAAGPK
NIR1_Hs RTMSVQQPDPFPAANPKPERAQSQPESDKDHERPLPALS--WARGPP-KFESVP-----
PITPNM_Hs R-----SRGPSQAERE GPGTPTTLARG-KARSISLKLDSEE-----
CG11111-PB -----RLHEQATNEN-----

Figure 13. Expression of the *rdgB* (GadFly Accession Number CG11111) Homolog in Mammalian Tissues

Figure 13A. Real-time PCR analysis of phosphatidylinositol membrane-associated (Pitpm) expression in wild type mouse tissues

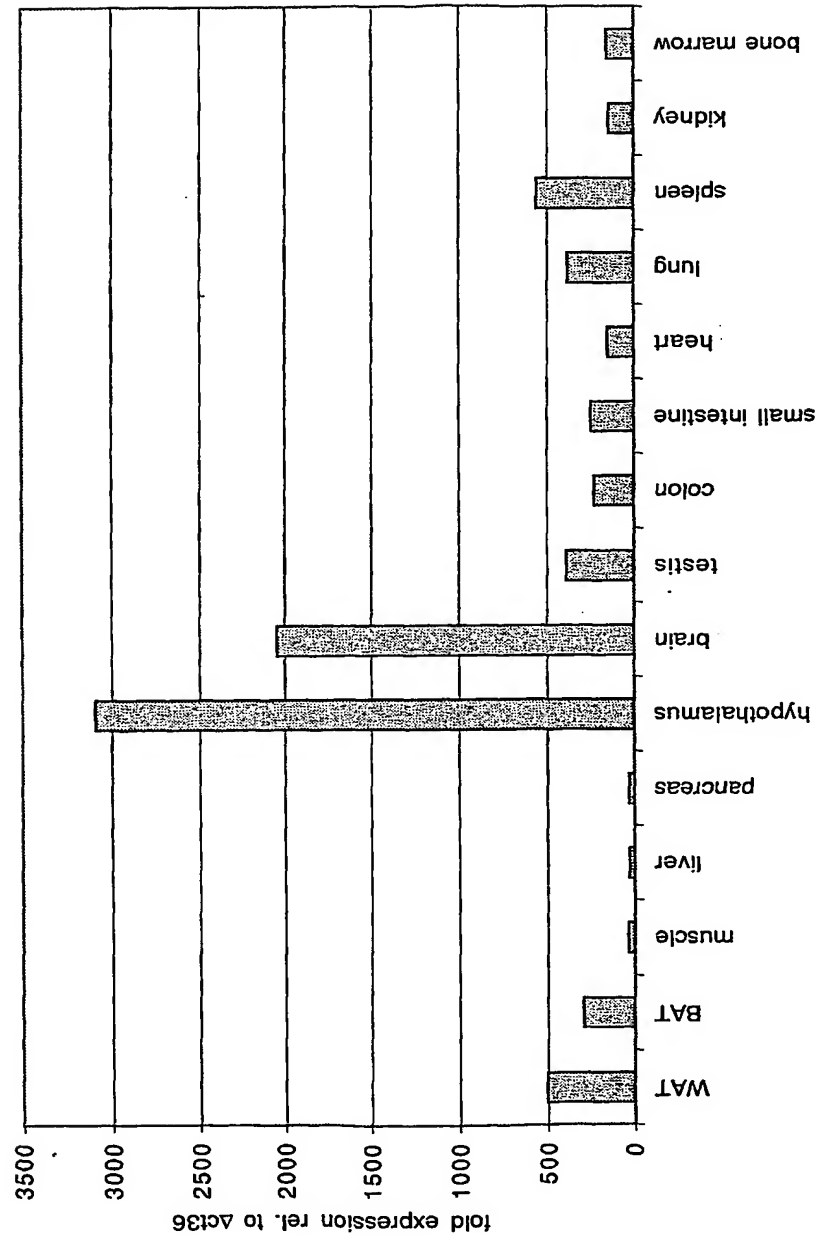


Figure 13B. Real-time PCR analysis of Pitpnm expression in different mouse models

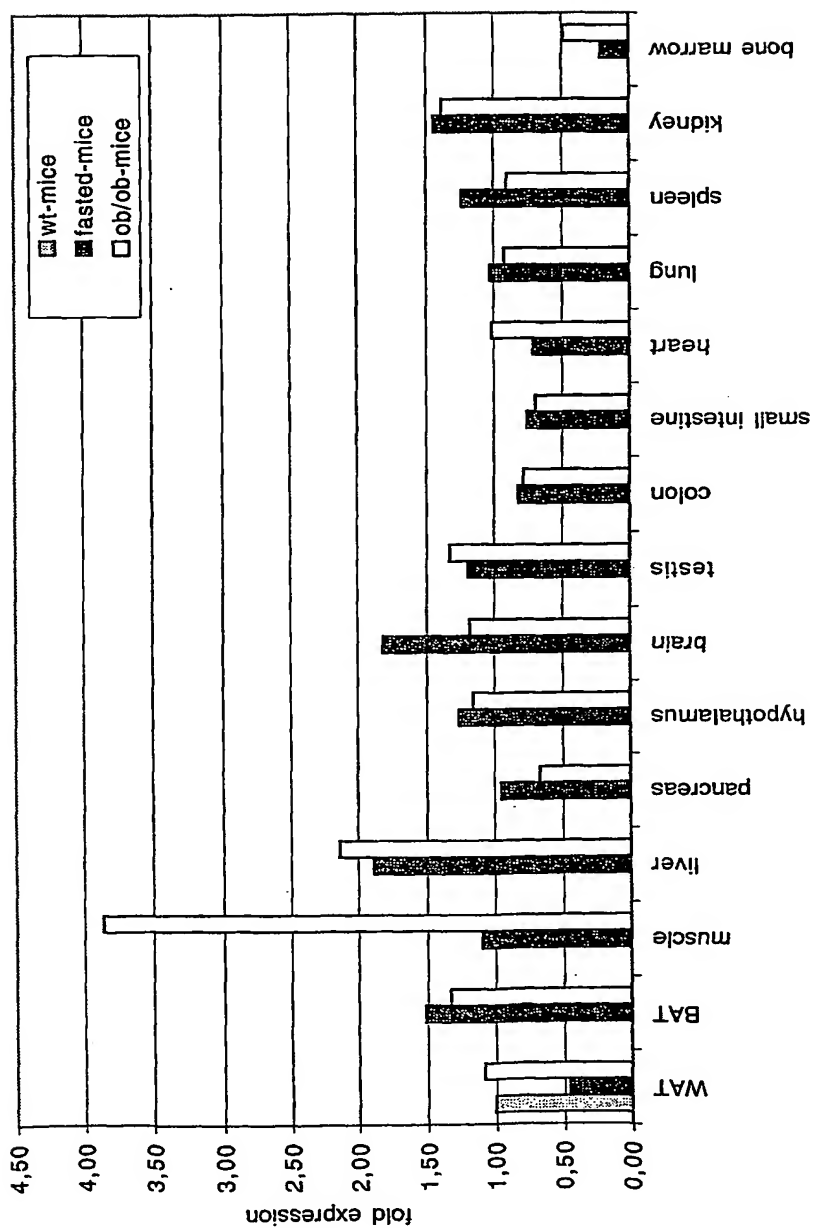


Figure 13C. Real-time PCR analysis of Pitpnm expression in mice fed with a high fat diet compared to mice fed with a control diet

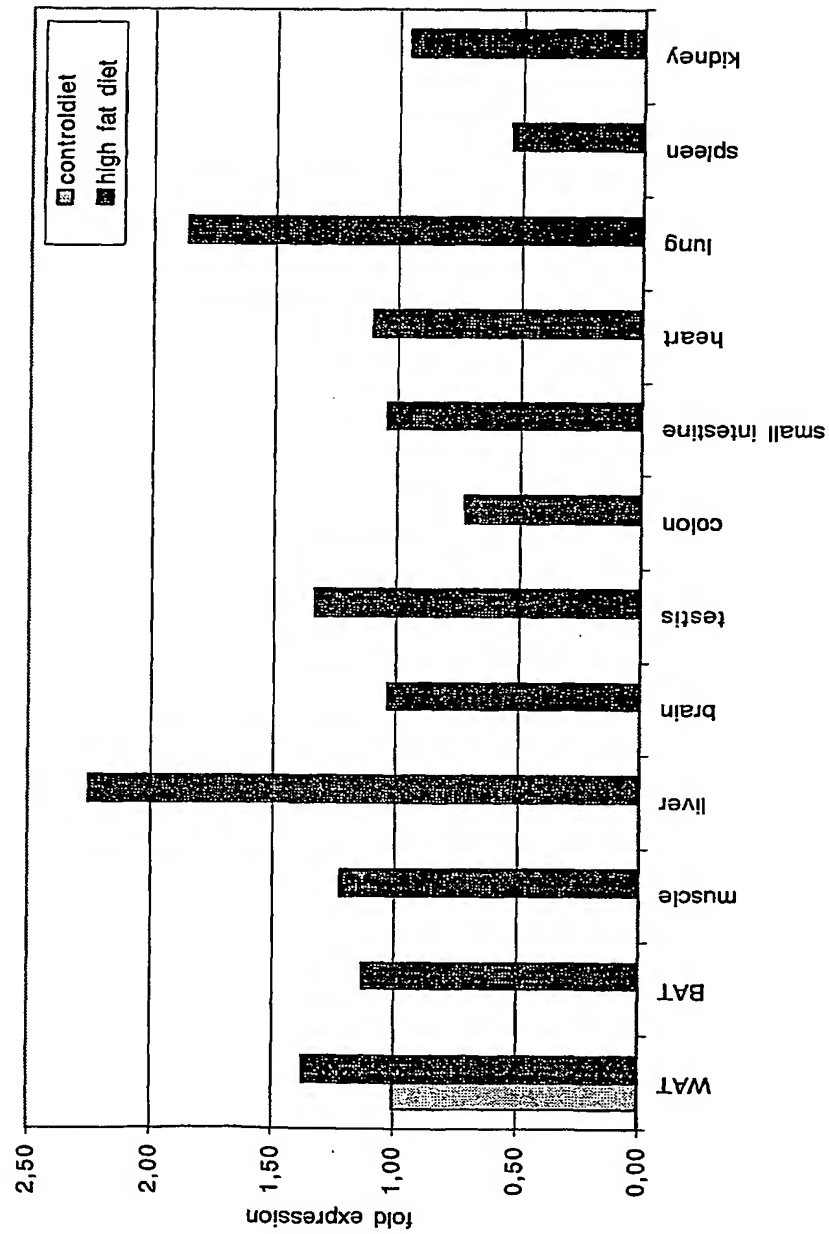


Figure 13D. Real-time PCR analysis of Pitpnm expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

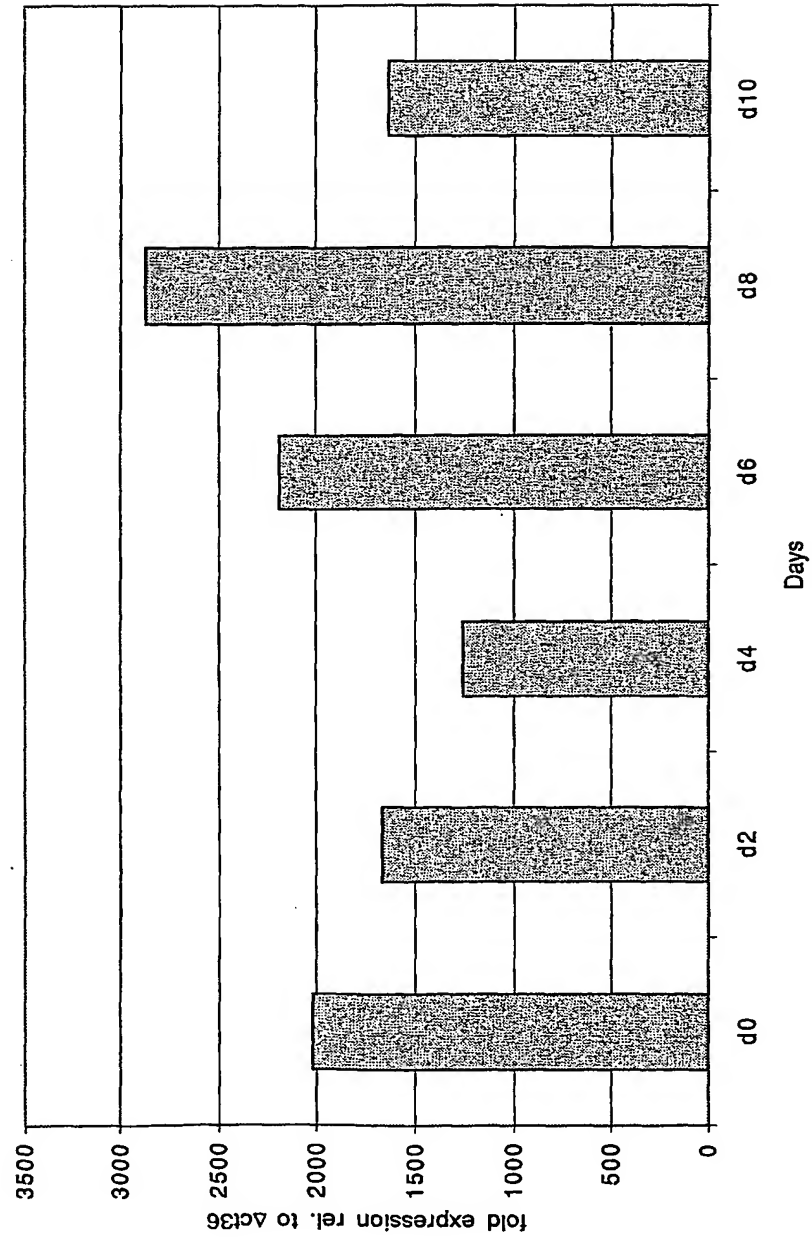


Figure 13E. Real-time PCR analysis of retinal degeneration B2 homolog (*Drosophila*) (*Rdgb2*) expression in wild type mouse tissues

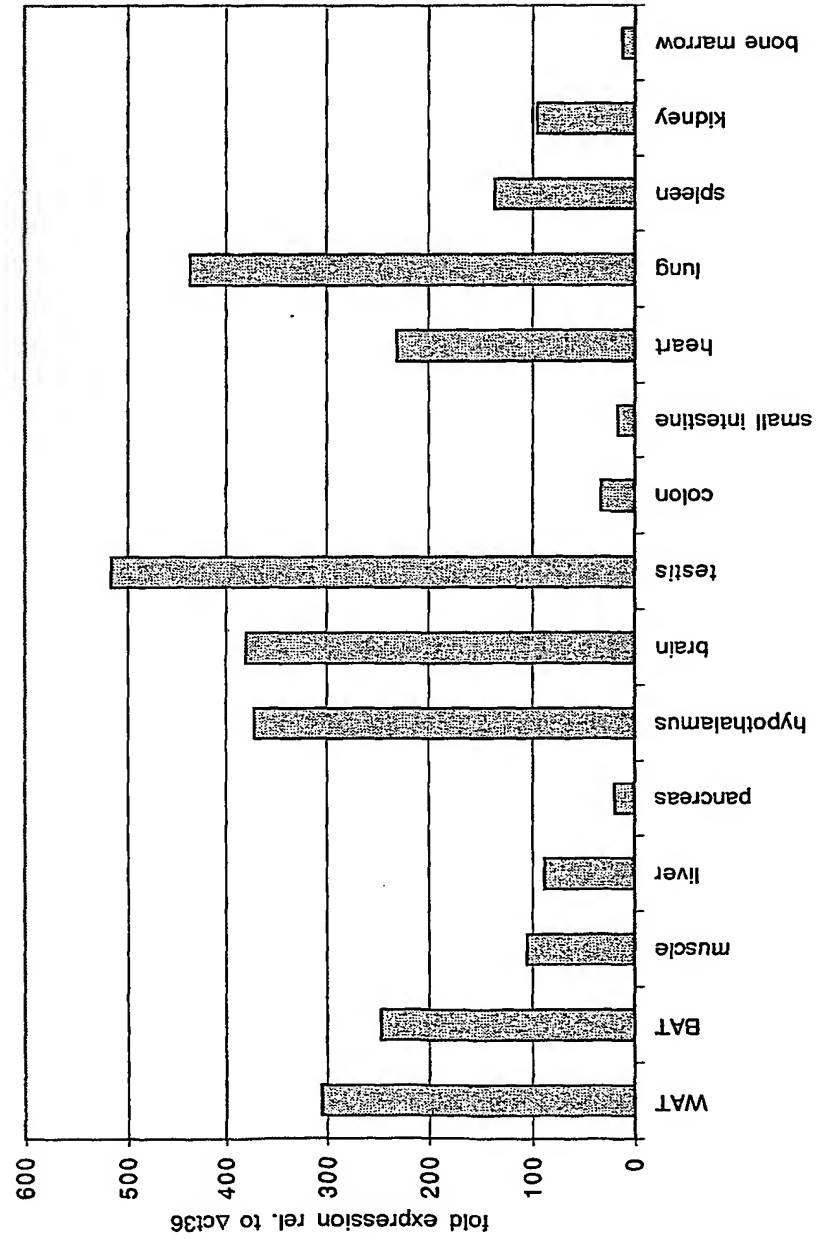


Figure 13F. Real-time PCR analysis of Rdgb2 expression in different mouse models

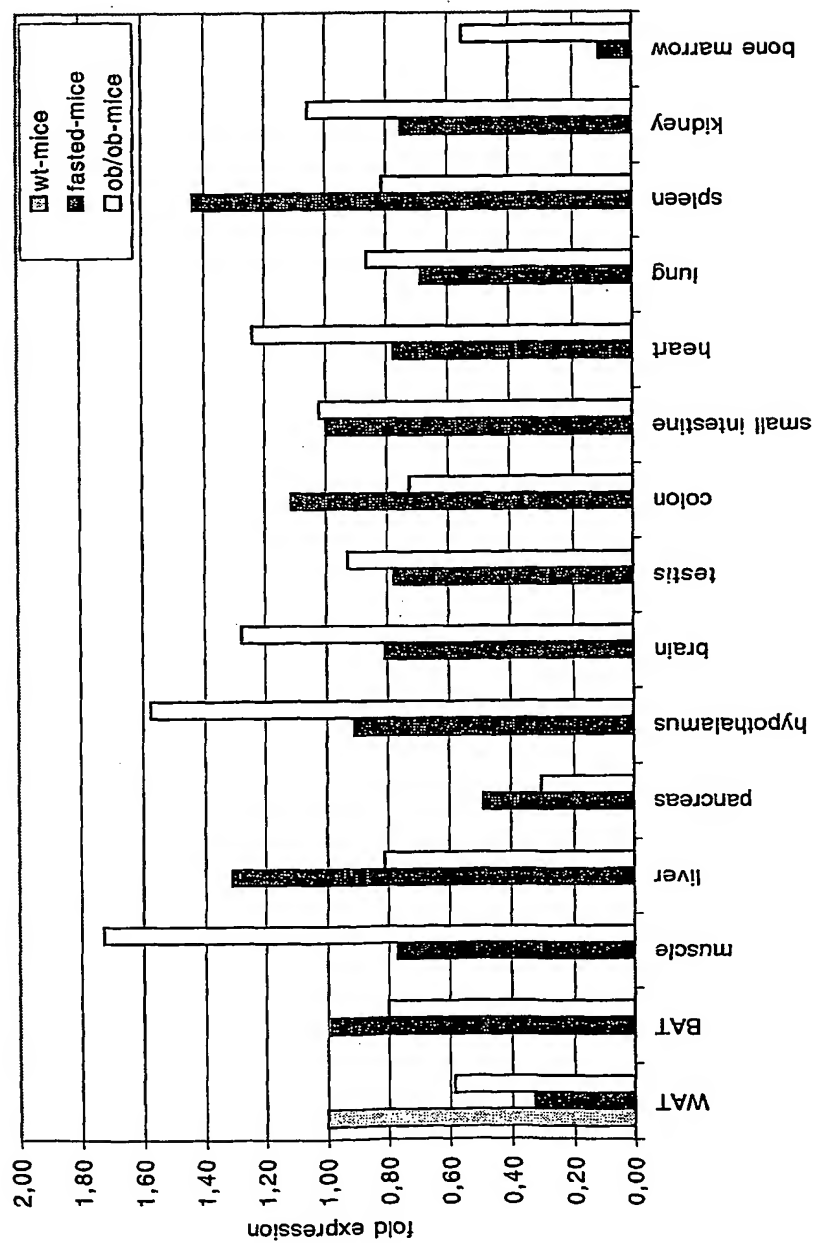


Figure 13G. Real-time PCR analysis of Rdgb2 expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

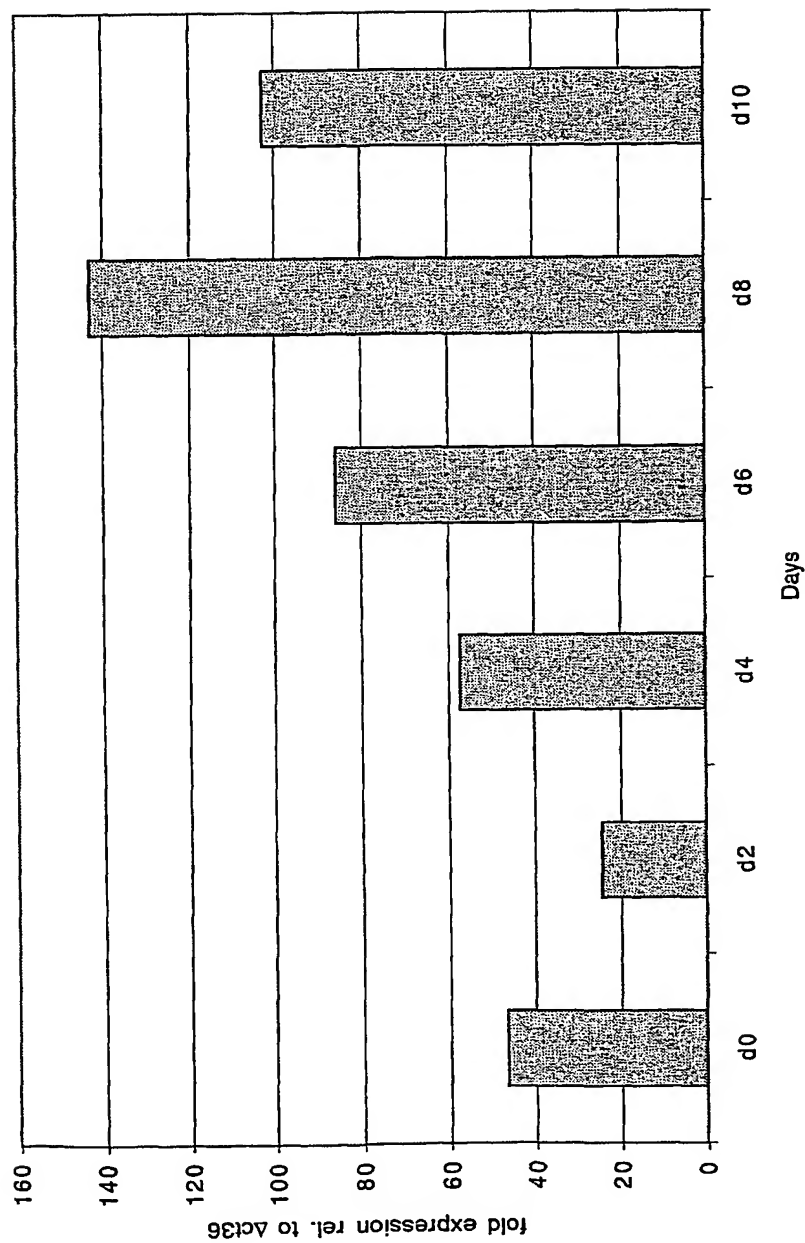


Figure 13H. Real-time PCR analysis of similar to PYK2 N-terminal domain-interacting receptor 1 (LOC216884) expression in wild type mouse tissues

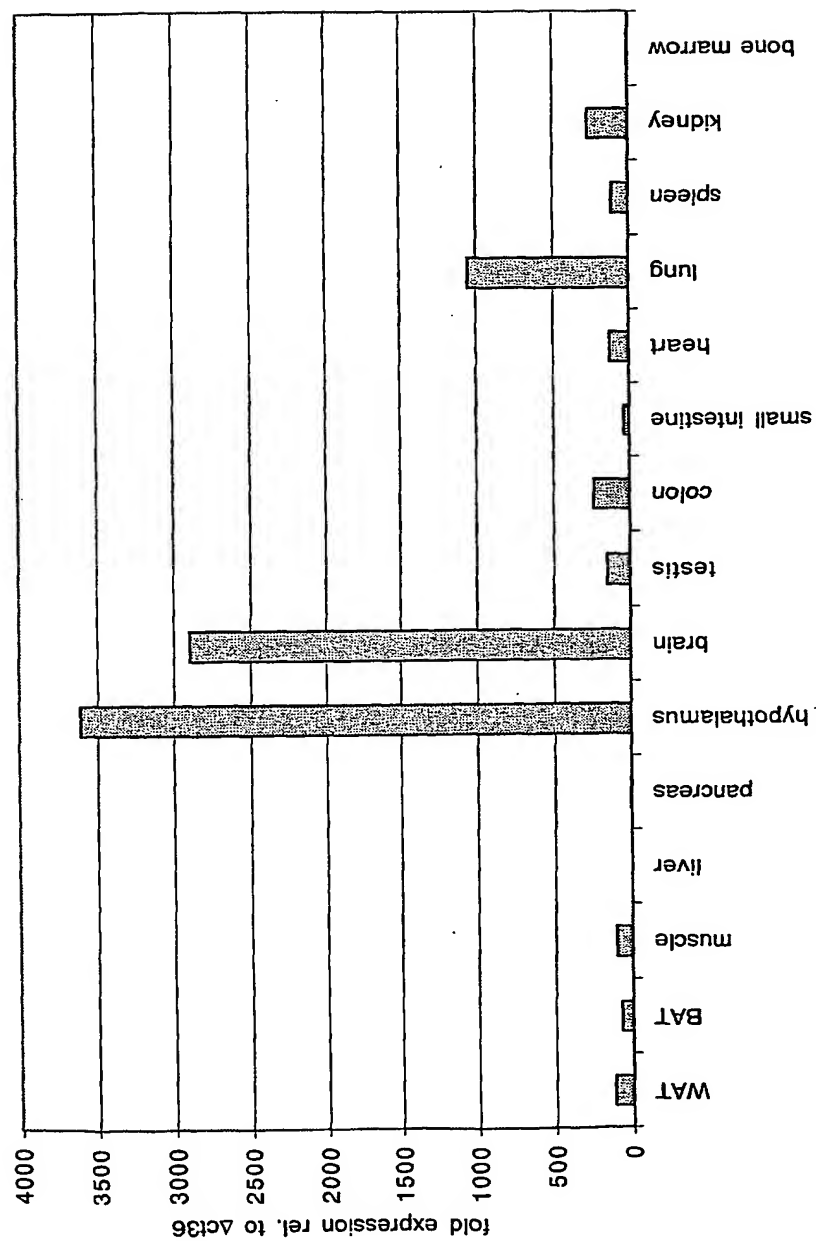
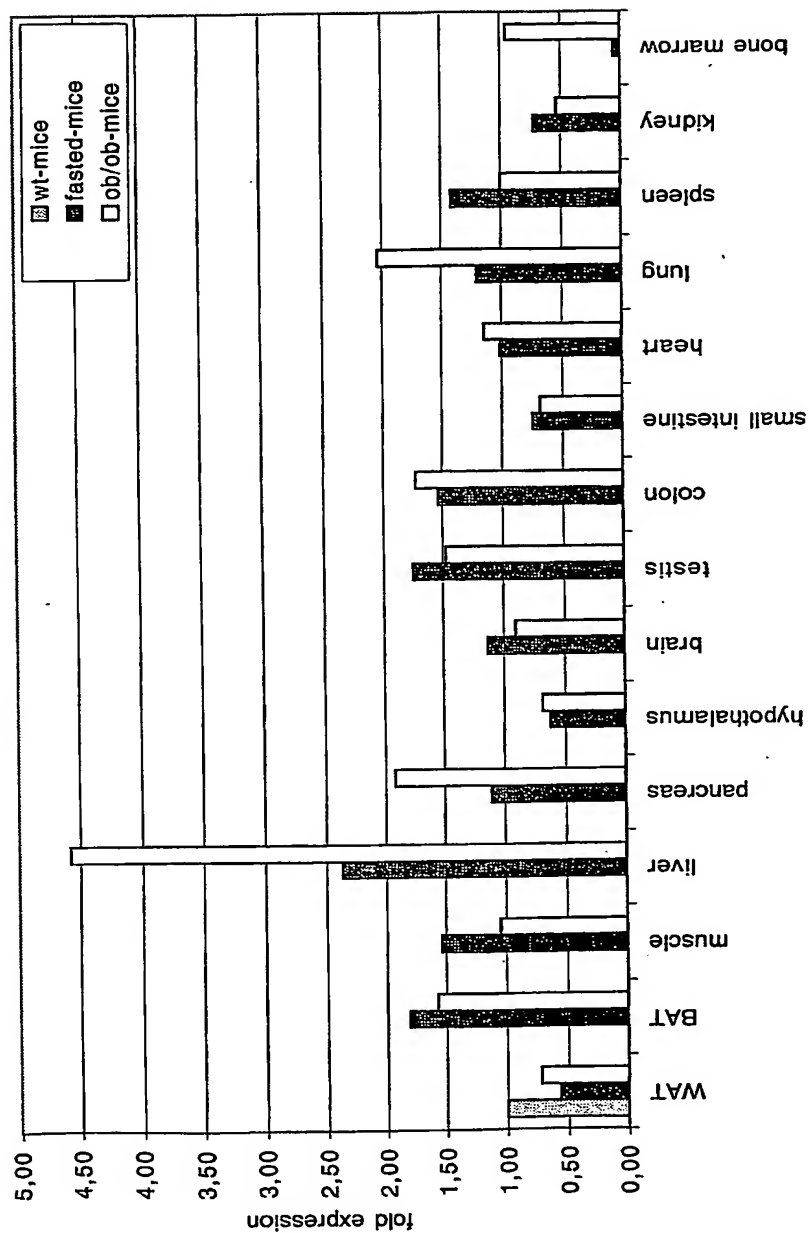


Figure 13L. Real-time PCR analysis of LOC216884 expression in different mouse models



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Figure 13J. Real-time PCR analysis of LOC216884 expression in mice fed with a high fat diet compared to mice fed with a control diet

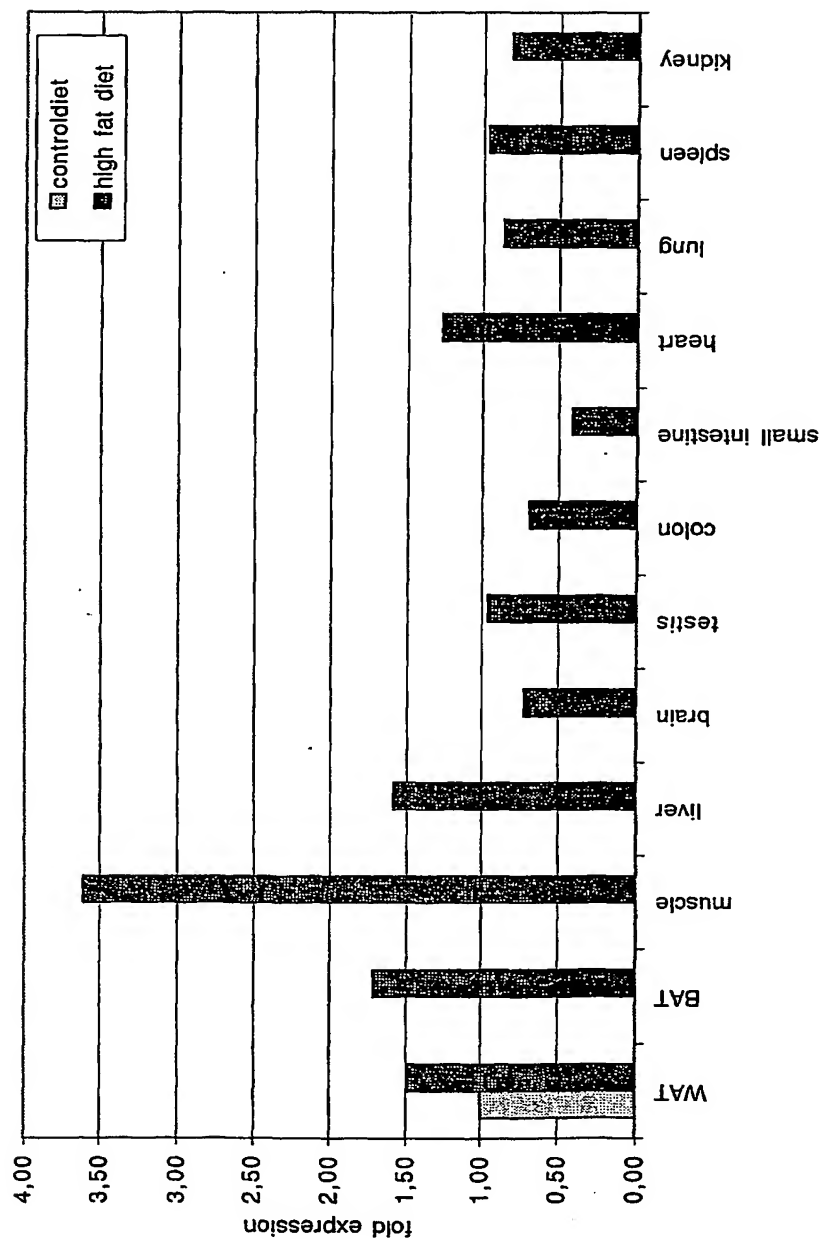


Figure 14. Triglyceride content of a *Drosophila Mekk1* (GadFly Accession Number CG7717) mutant

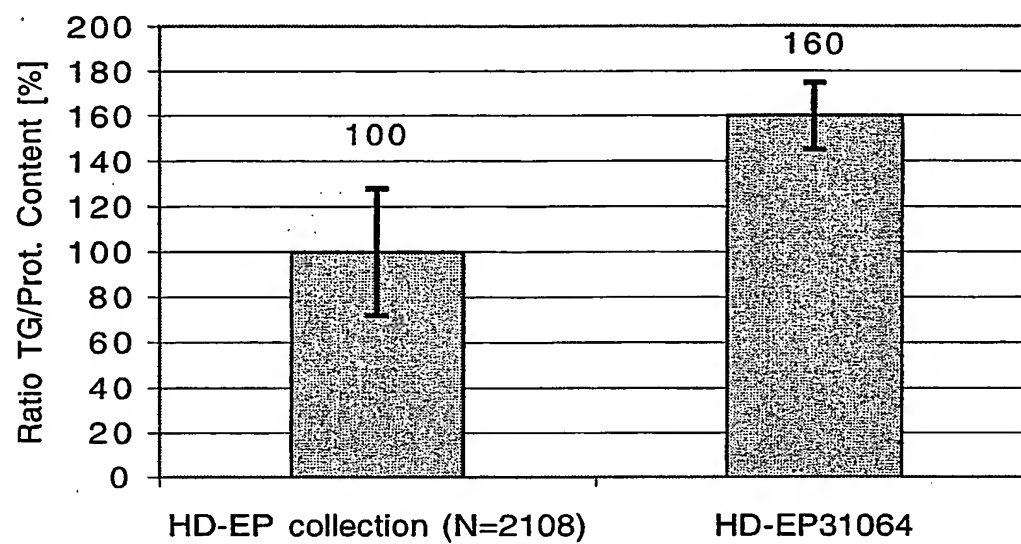


Figure 15. Molecular organization of the *Mekk1* gene (GadFly Accession Number CG7717)

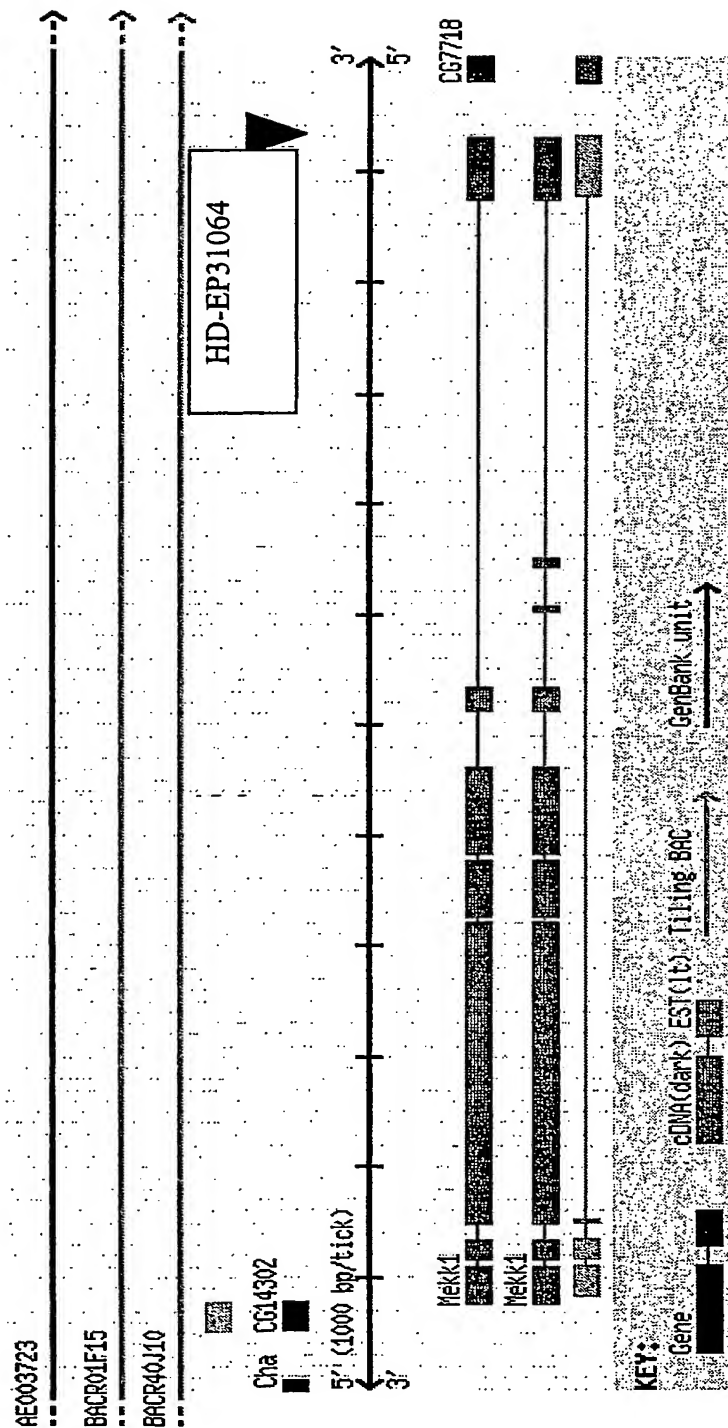


Figure 16. Expression of a *Mekk1* (GadFly Accession Number CG7717) Homolog in Mammalian Tissues

Figure 16A. Real-time PCR analysis of mitogen activated protein kinase kinase 4 (Map3k4) expression in wild type mouse tissues

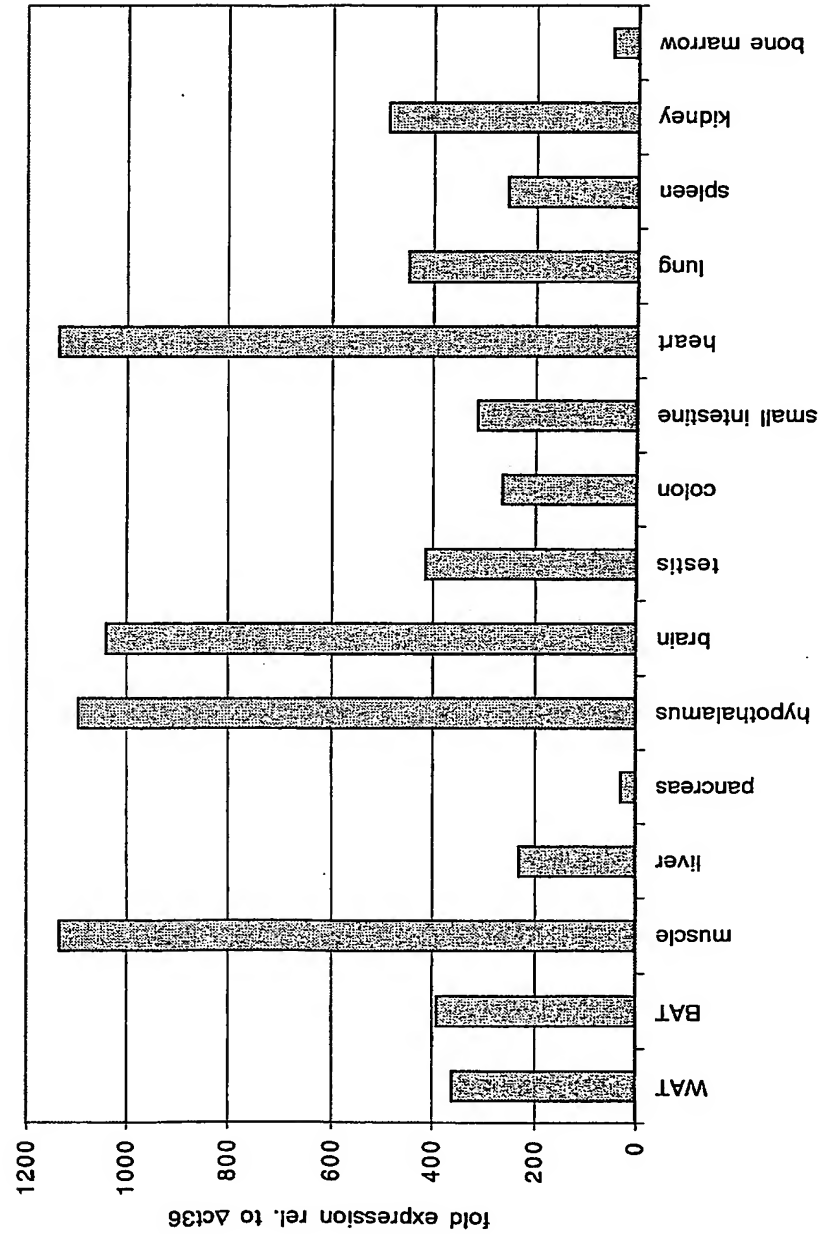


Figure 16B. Real-time PCR analysis of Map3k4 expression in different mouse models

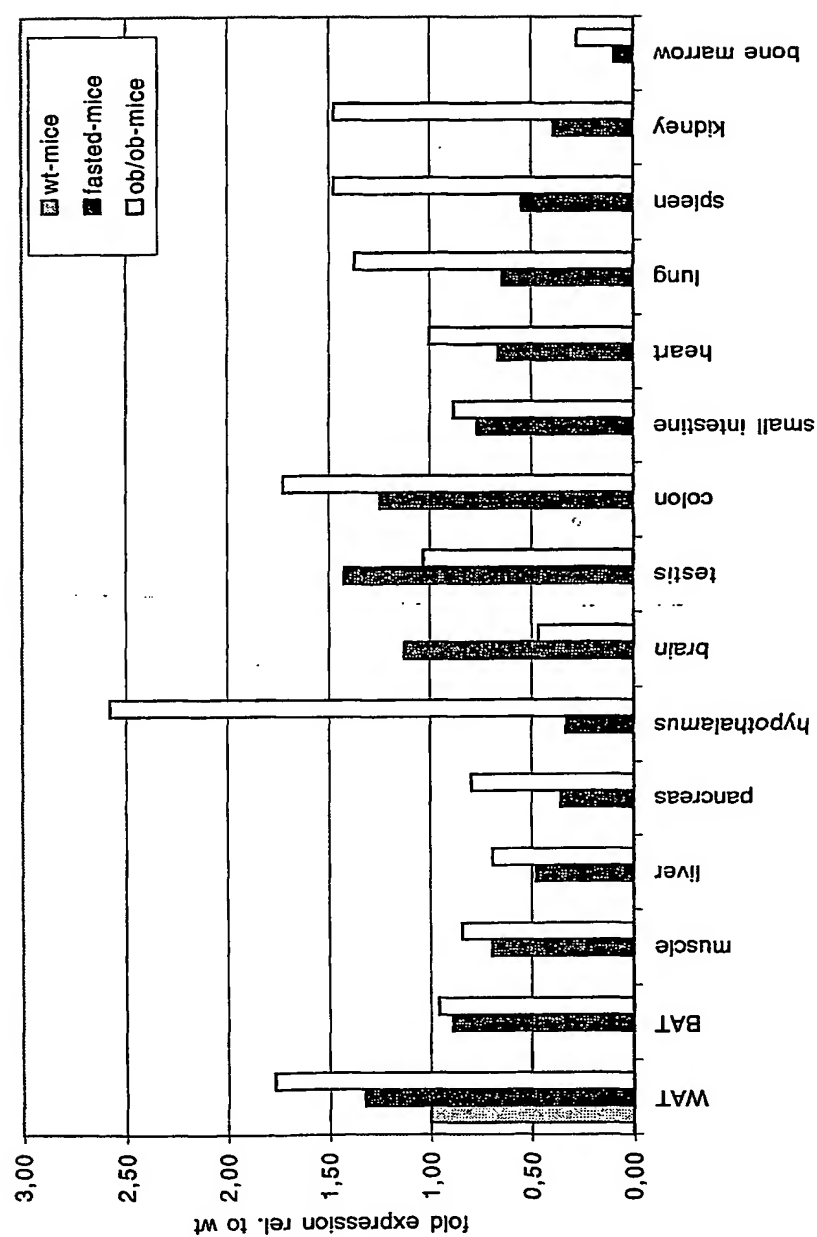


Figure 16C. Real-time PCR analysis of Map3k4 expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

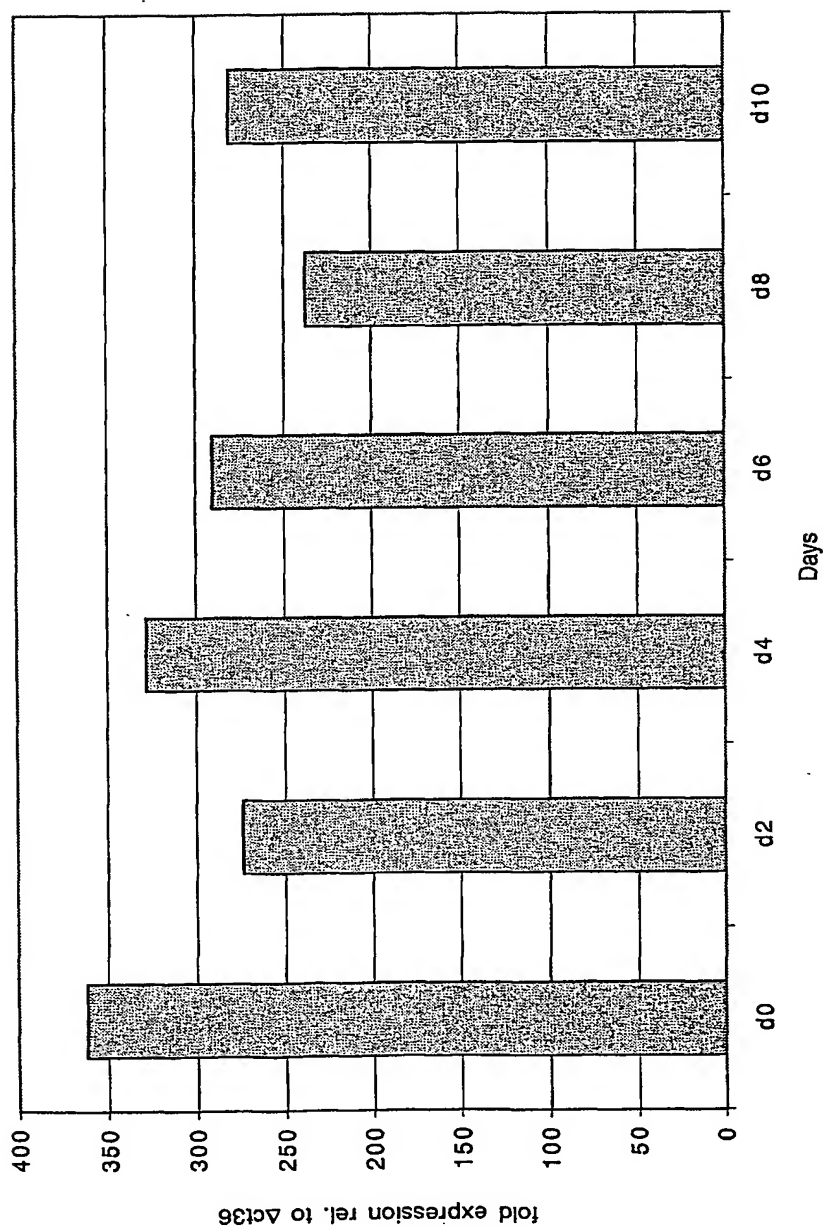


Figure 17. Energy storage metabolites (ESM) content (triglyceride (TG) and glycogen) of a *Drosophila Ady43A* (GadFly Accession Number CG1851) mutant

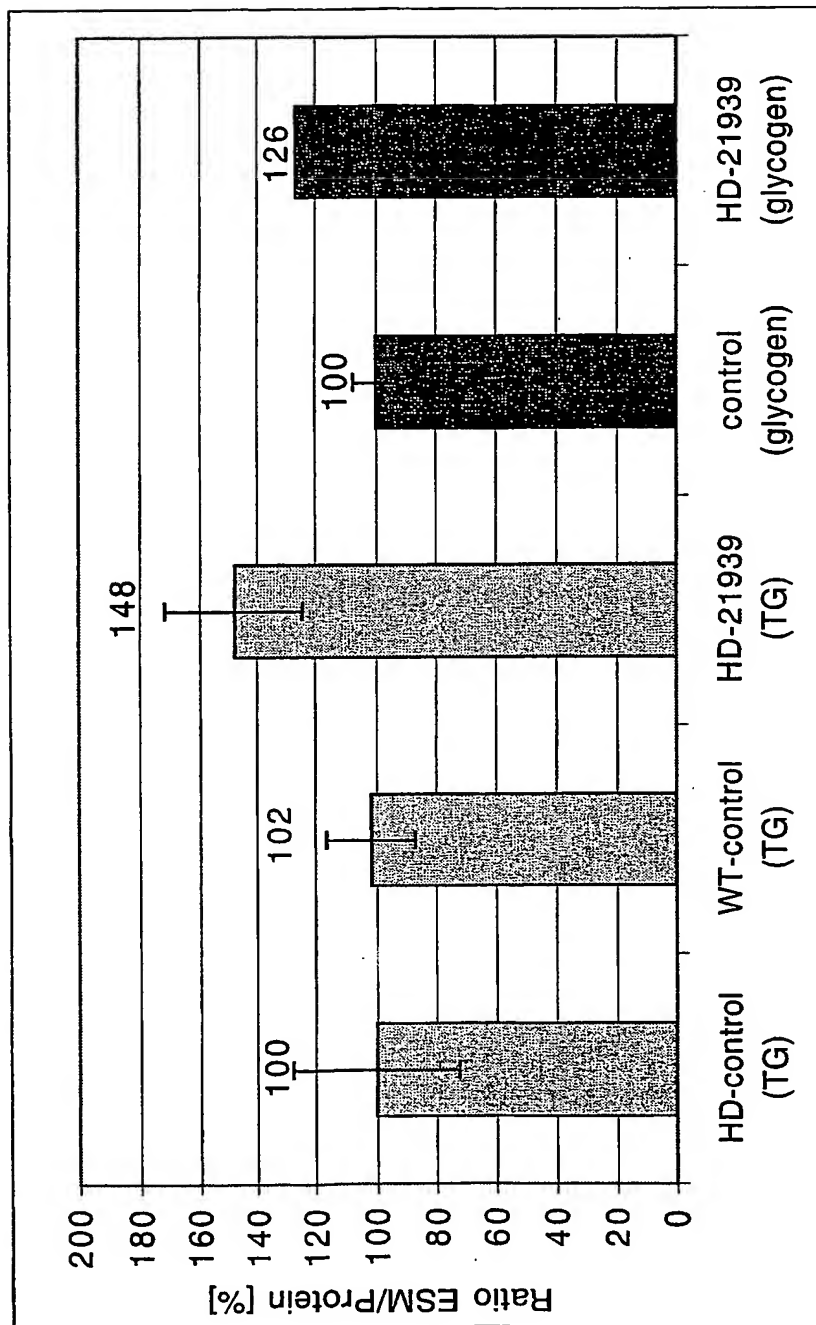


Figure 18. Molecular organization of the *Ady43A* gene (GadFly Accession Number CG1851)

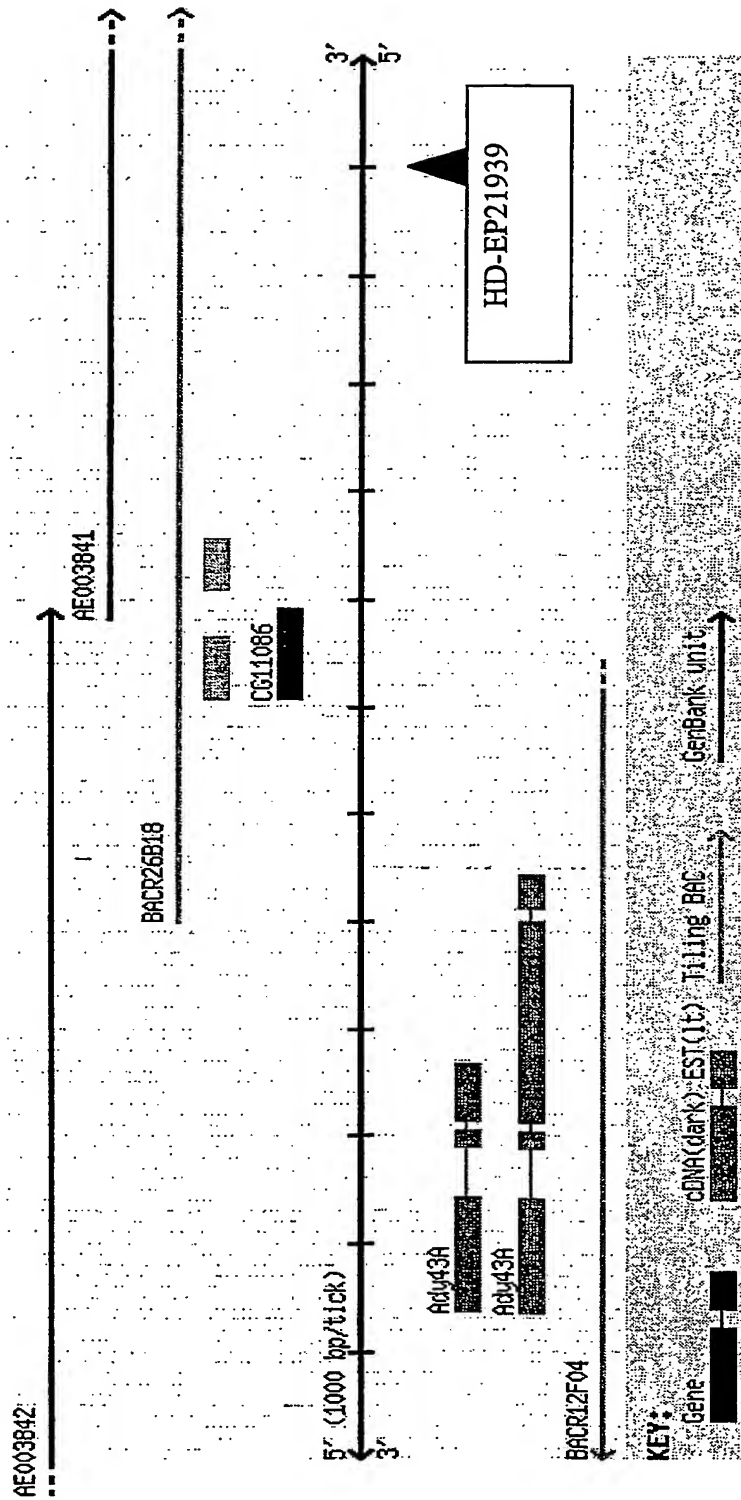


Figure 19. Expression of the *Ady43A* (GadFly Accession Number CG1851) Homolog in Mammalian Tissues

Figure 19A. Real-time PCR analysis of adenosine kinase (Adk) expression in wild type mouse tissues

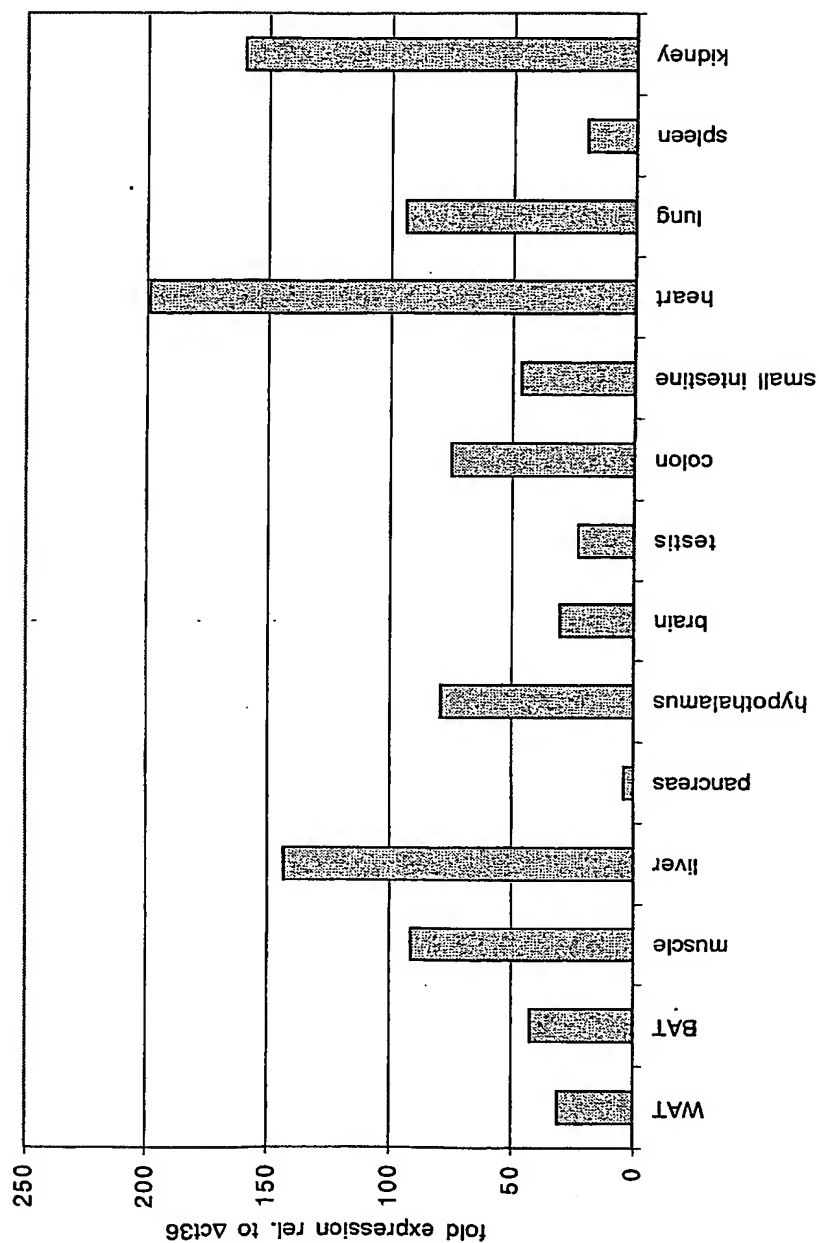


Figure 19B. Real-time PCR analysis of Adk expression in different mouse models

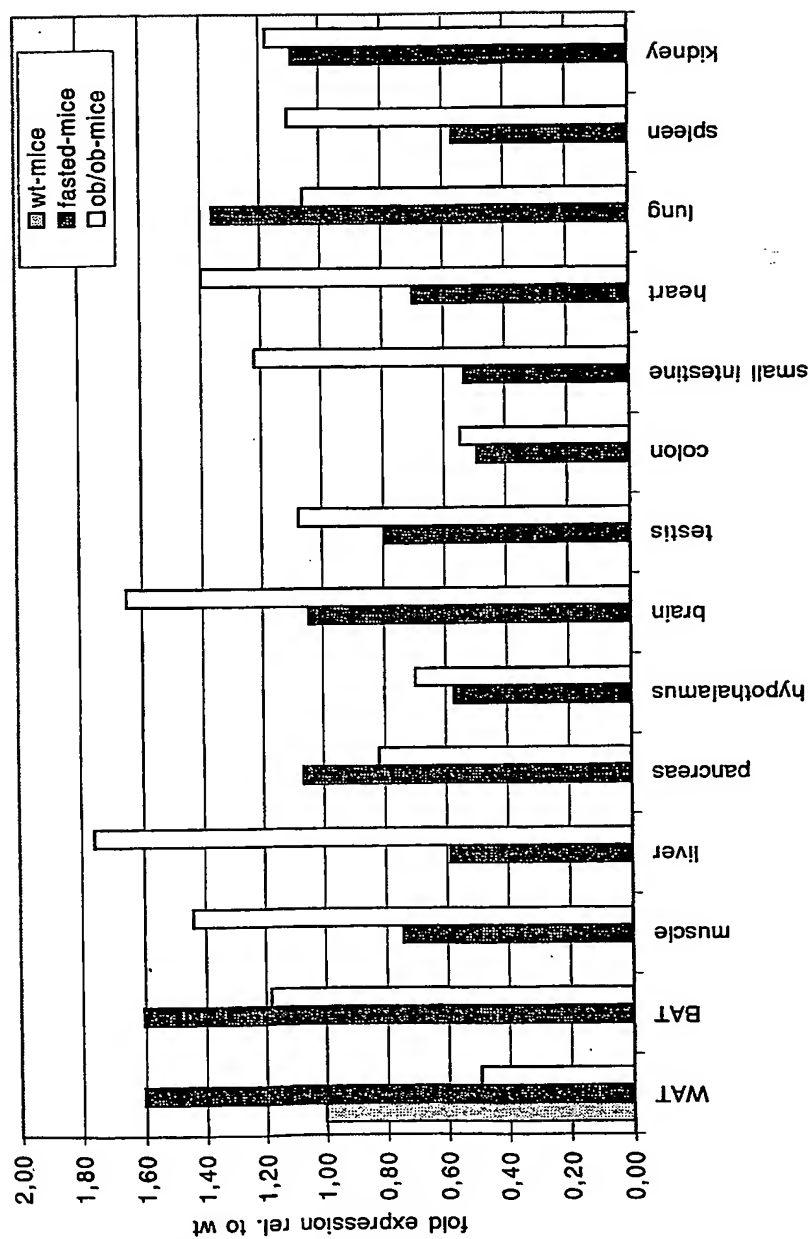


Figure 19C. Real-time PCR analysis of Adk expression in mice fed with a high fat diet compared to mice fed with a control diet

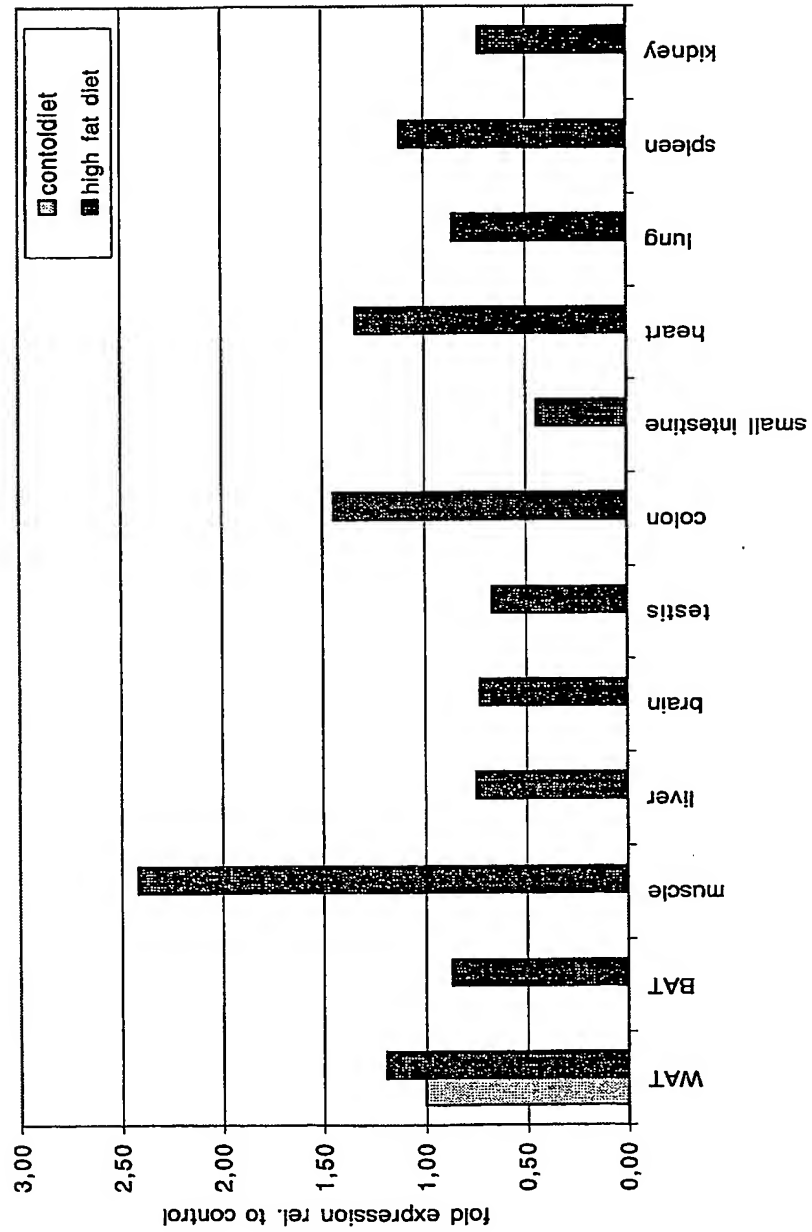


Figure 19D. Real-time PCR analysis of Adk expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

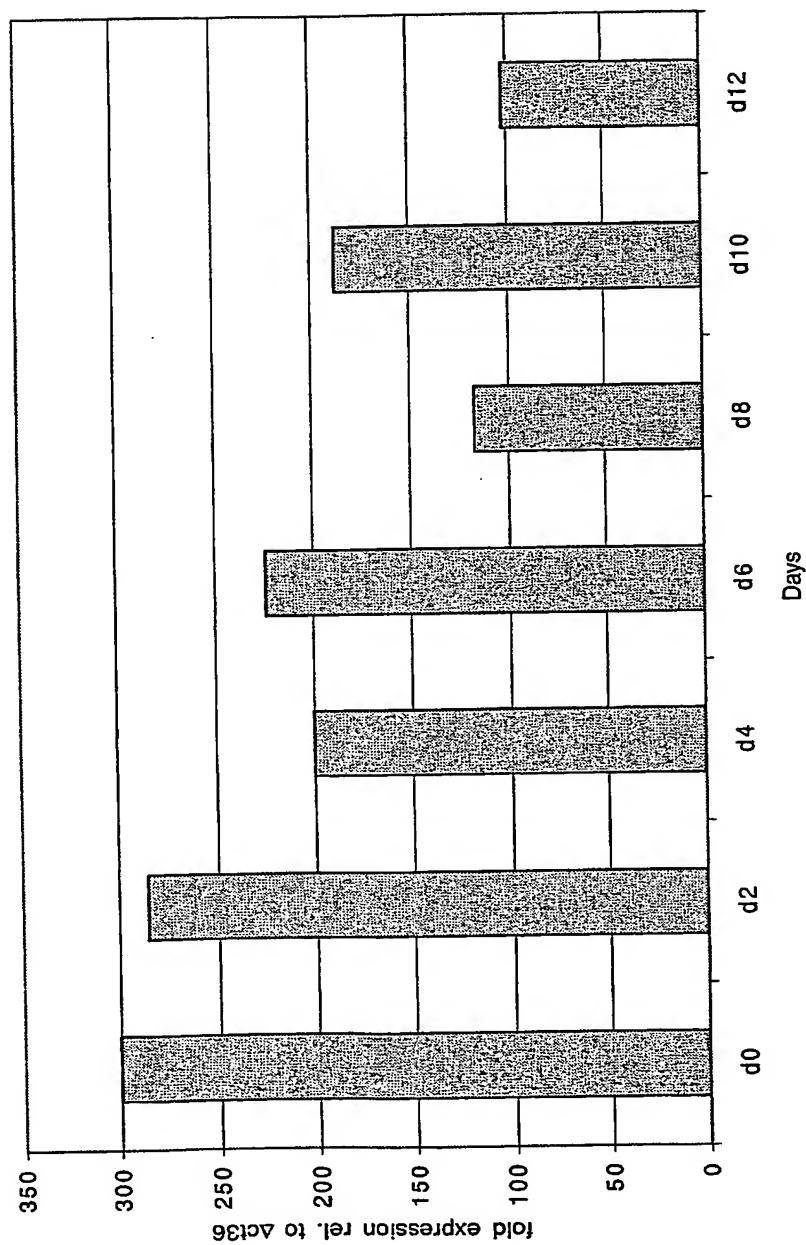


Figure 20. Triglyceride content of a *Drosophila* CG14816 (GadFly Accession Number) mutant

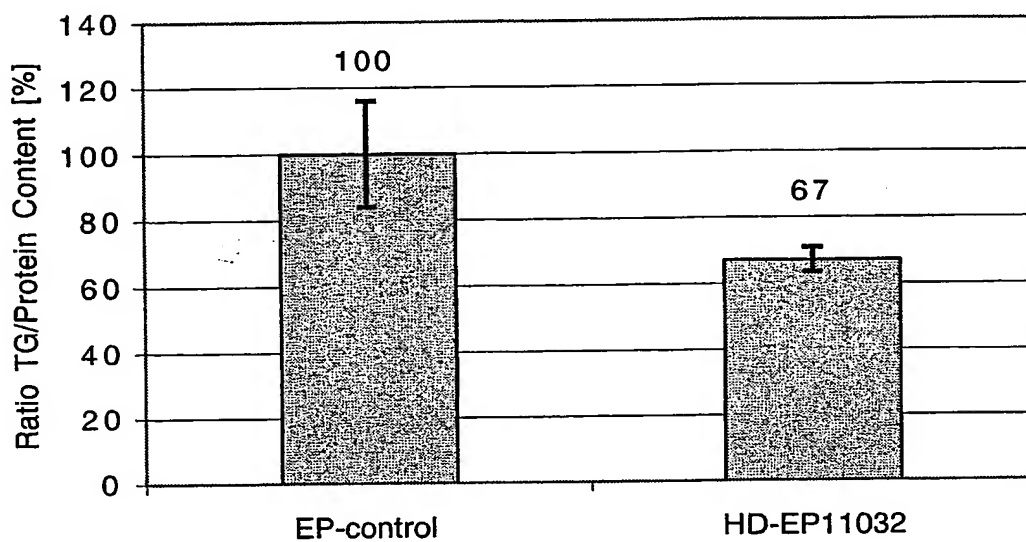


Figure 21. Molecular organization of CG14816 gene (GadFly Accession Number)

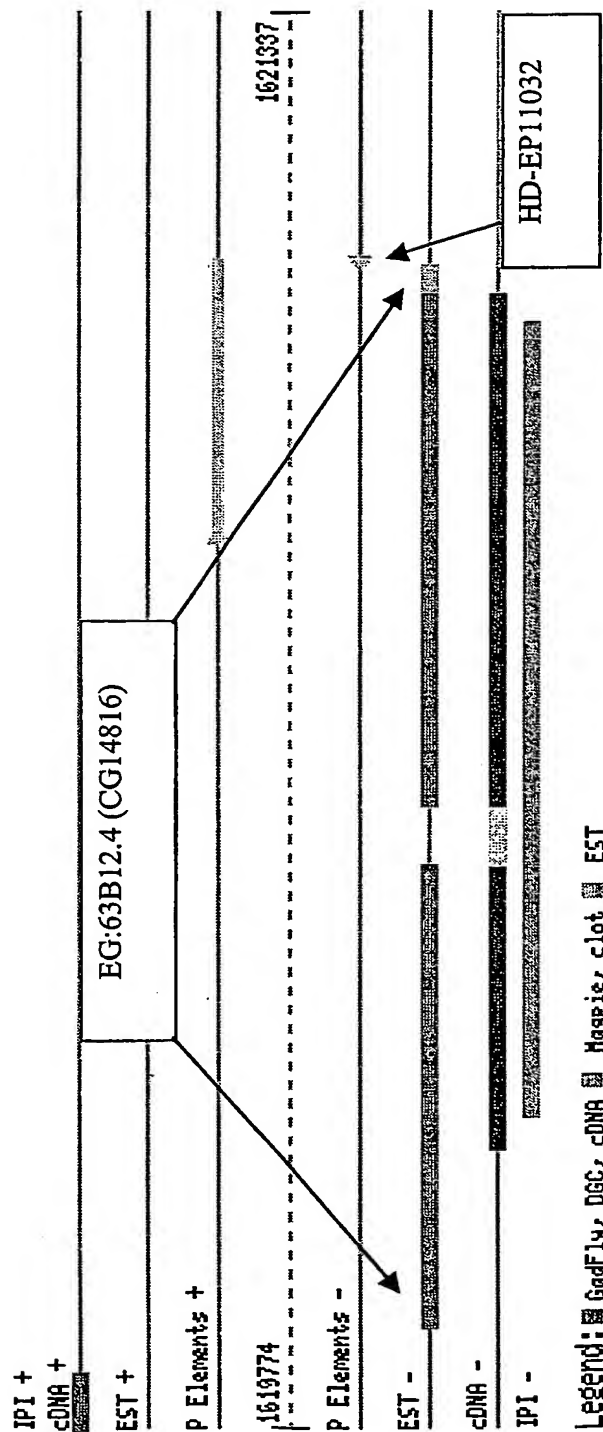


Figure 22. Expression of the CG14816 (GadFly Accession Number) Homolog in Mammalian Tissues

Figure 22A. Real-time PCR analysis of RIKEN cDNA 2610528A17 gene (2610528A17Rik) expression in wild type mouse tissues

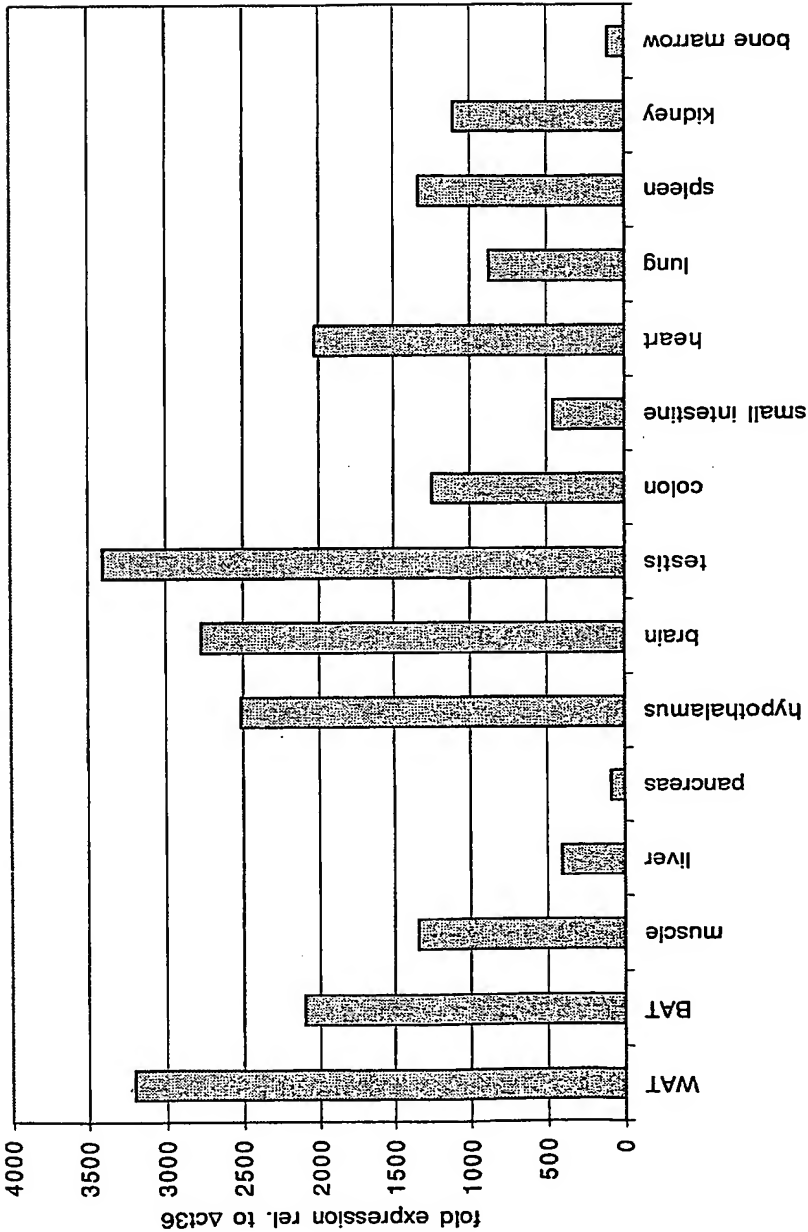


Figure 22B. Real-time PCR analysis of 2610528A17Rik expression in different mouse models

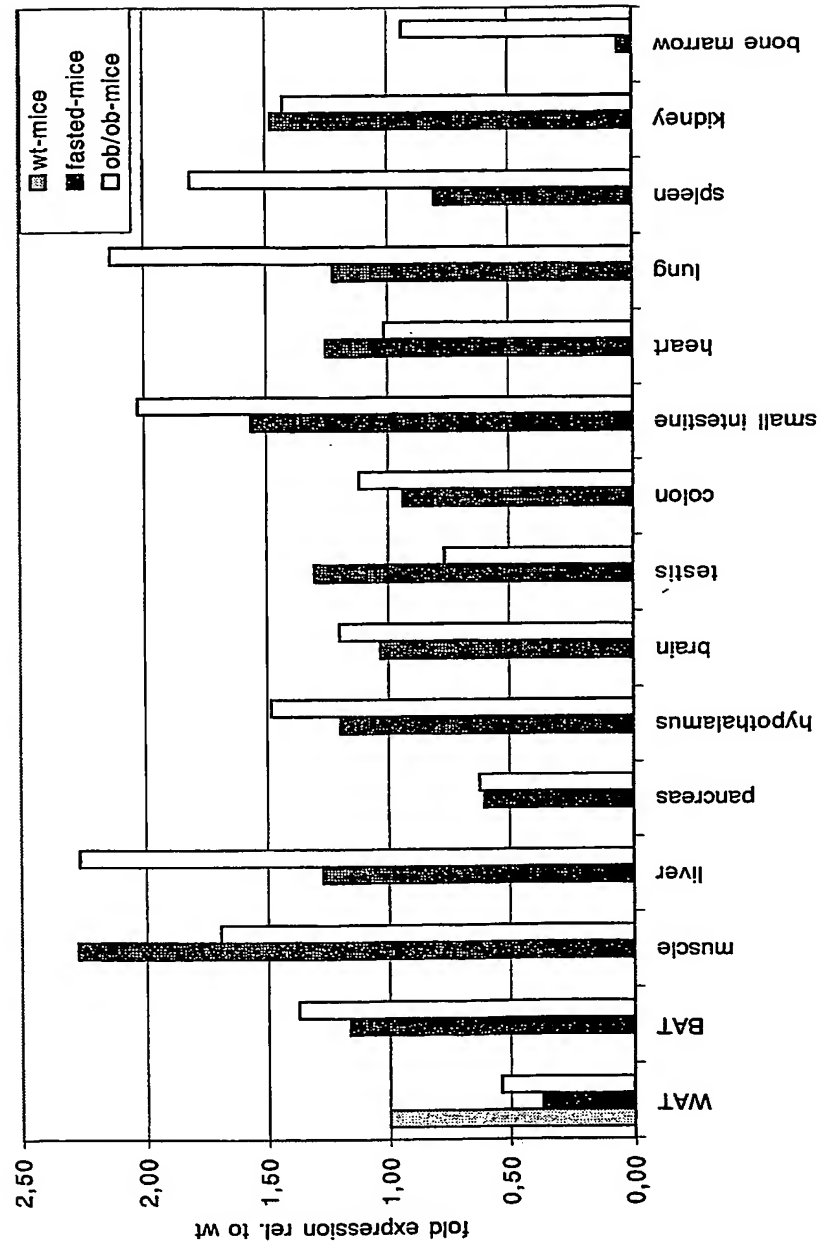


Figure 22C. Real-time PCR analysis of 2610528A17Rik expression in mice fed with a high fat diet compared to mice fed with a control diet

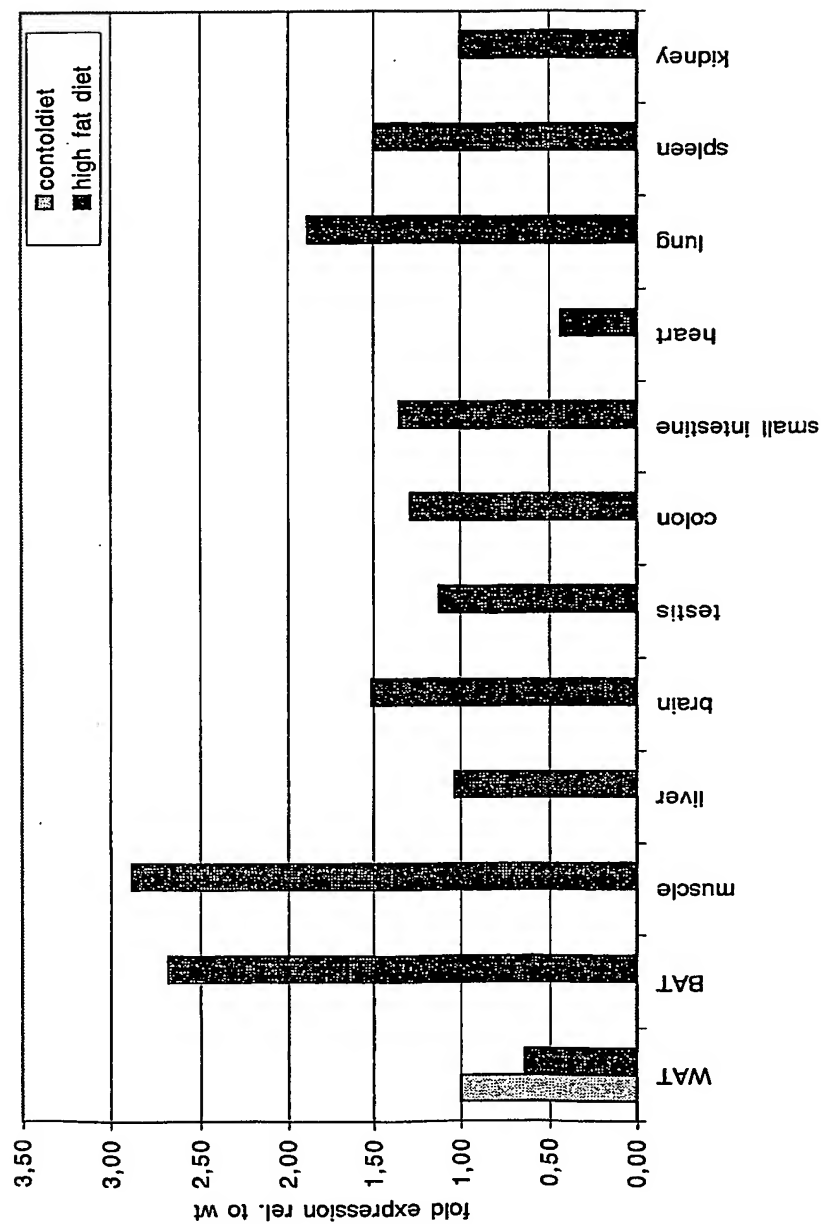


Figure 22D. Real-time PCR analysis of 2610528A17Rik expression in 3T3-L1 cells differentiated from preadipocytes to mature adipocytes

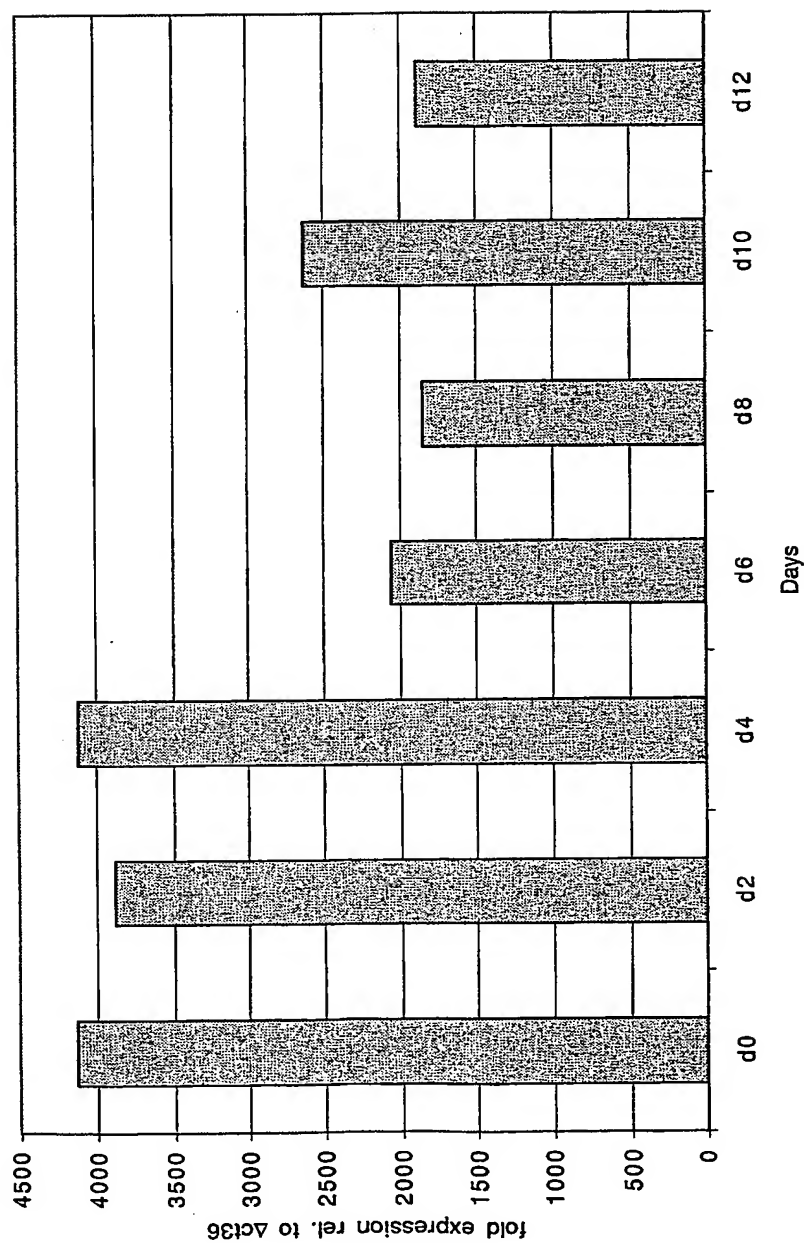
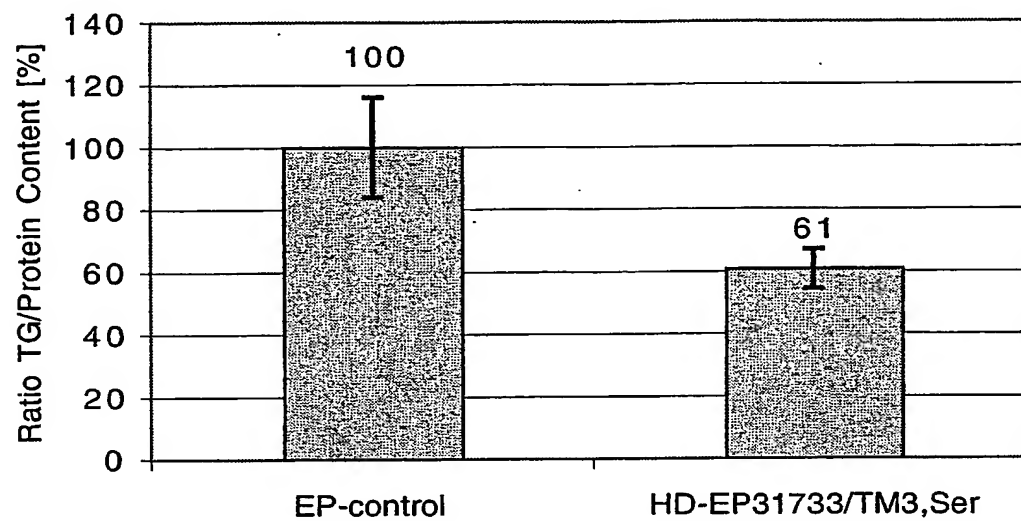


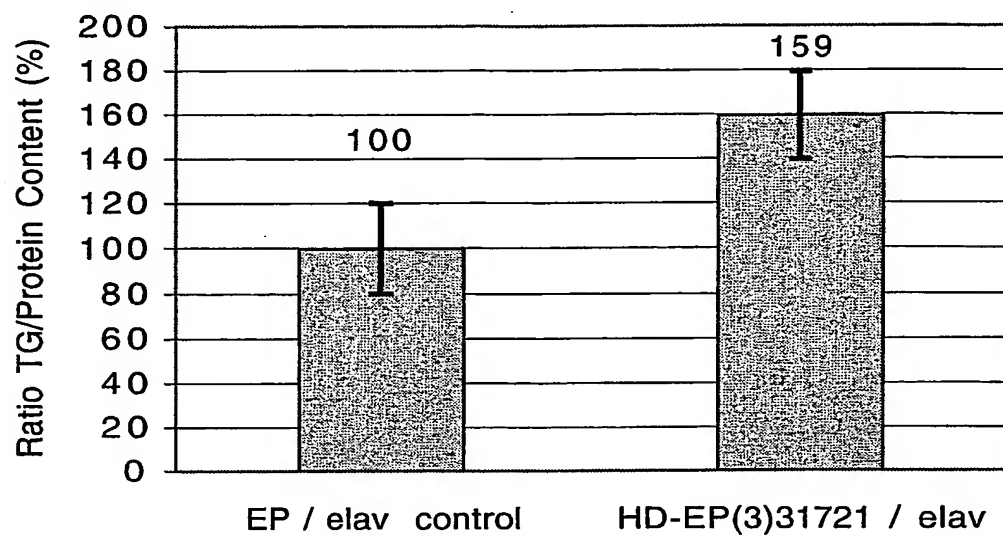
Figure 23. Triglyceride content of a *Drosophila twins* (*tw*; GadFly Accession Number CG6235) mutant



Genomic map of the HD-EP(3)31733/TM3,Ser gene. The map shows the gene structure with exons as black boxes and introns as lines. The gene is oriented 5' to 3' from left to right. A scale bar indicates 5' (1000 bp/10k) and 3' (1000 bp/10k). A large black box labeled 'HD-EP(3)31733/TM3,Ser' is positioned above the gene. A black triangle points to the start of the gene. A scale bar at the bottom indicates 5' (1000 bp/10k) and 3' (1000 bp/10k). A key at the bottom right defines the symbols: a black box for 'Gene', a line with a black box for 'cDNA (dark) EST (1c)', a line with a black box for 'Tiling BAC', and a line with a black box for 'GenBank unit'.

KEY

Figure 25. Triglyceride content of a *Drosophila PP2A-B'* (GadFly Accession Number CG7913) mutant



Genomic map of the HD-EP(3)31721 gene region. The map shows the gene structure with exons as black boxes and introns as lines. Key features include the HD-EP(3)31721 gene, Chp20 gene, and various PP2A-B' genes. The map is oriented with 5' on the left and 3' on the right. A scale bar indicates 10000 bp/tick. The map is flanked by two long horizontal lines with arrows at the ends. The map is labeled with 'HD-EP(3)31721' in a box. The map is also labeled with 'Chp20', 'PP2A-B'', and 'PP2A-B' genes. The map is also labeled with 'CG7218', 'CG7217', 'CG7215', and 'CG7212' genes. The map is also labeled with 'Your BLAST hit', 'cDNA(dark)', 'EST(light)', 'P insertion', 'Tiling BAC', and 'GenBank unit'.

Figure 27. Expression of human *guf* homologs in mammalian (human) tissue.

Figure 27A. Microarray analysis of ornithine decarboxylase antizyme 1 (OAZ1) expression in human abdominal derived primary adipocyte cells during the differentiation from preadipocytes to mature adipocytes

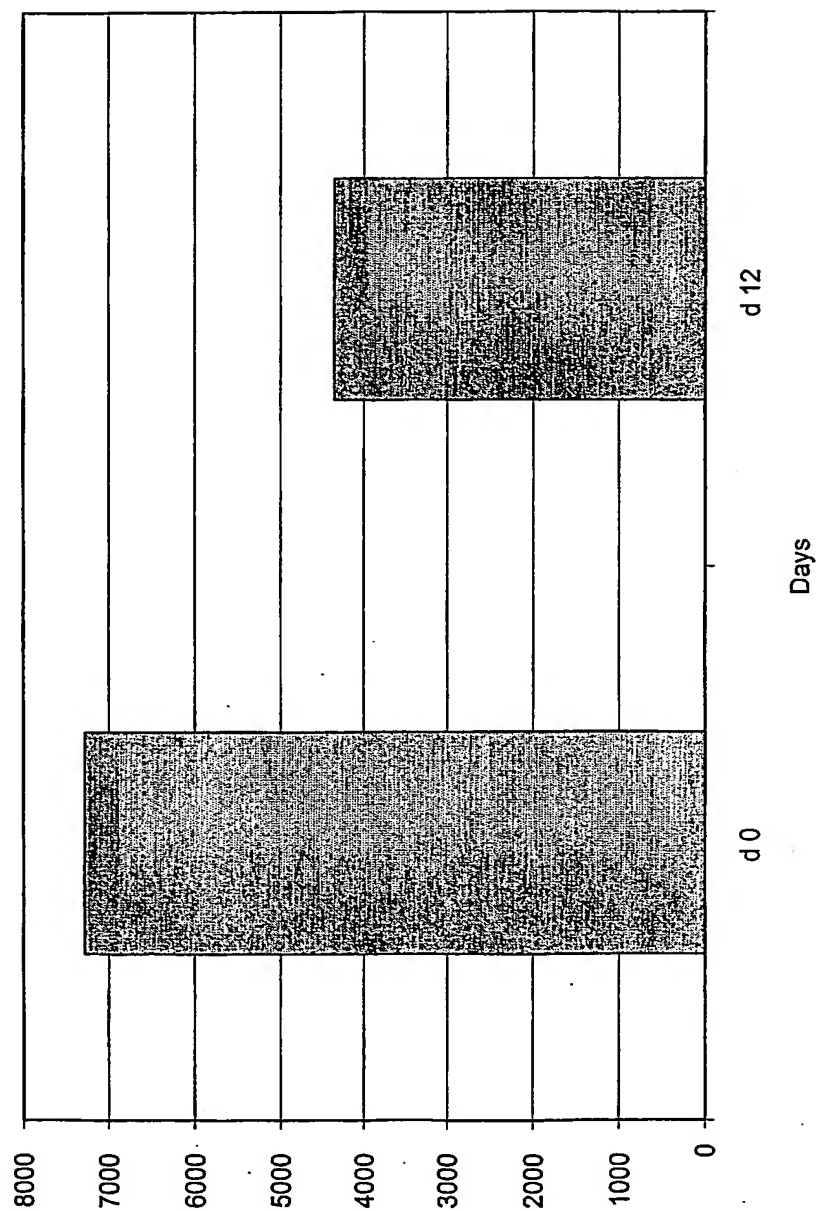




Figure 27B. Microarray analysis of ornithine decarboxylase antizyme 2 (OAZ2) expression in human abdominal derived primary adipocyte cells during the differentiation from preadipocytes to mature adipocytes

